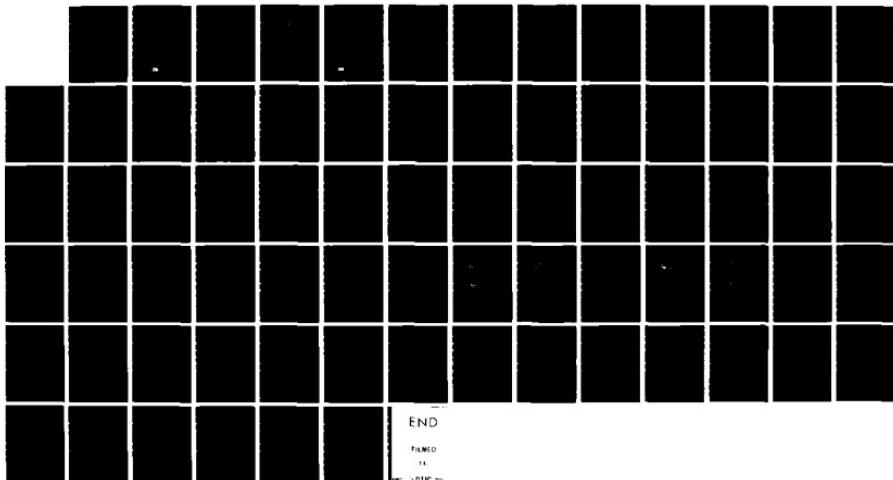


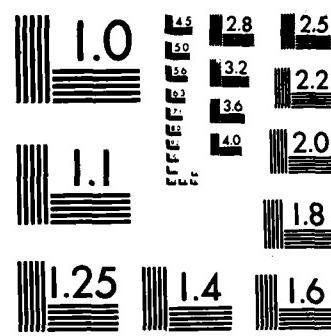
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CONSTRUCTION OF "TRAINING COST PER GRADUATE" FOR THE NAVY COMPREHENSIVE COMPENSATION AND SUPPLY STUDY

Bruce N. Angier
Kurt A. Driscoll
Kathy A. Carpenter

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PROFESSIONAL PAPER 386 / November 1982

CONSTRUCTION OF "TRAINING COST PER GRADUATE" FOR THE NAVY COMPREHENSIVE COMPENSATION AND SUPPLY STUDY

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CONSTRUCTION OF "TRAINING COST PER GRADUATE" FOR THE NAVY COMPREHENSIVE COMPENSATION AND SUPPLY STUDY

INTRODUCTION

The training costs per graduate reported in this memorandum were originally constructed for use in the Navy Comprehensive Compensation and Supply Study (NACCS) [1]. Because of this original purpose, the data used are sometimes quite restrictive (e.g., attrition data for 4YO NPS males), and sometimes quite detailed (e.g., a breakdown by mental group and educational certification). However, the methods used and the results generated have created enough interest in cognizant Navy organizations that it has been decided to report these results separate from the main publication in a form which can be more easily distributed to individuals with specific interests in these types of costing issues.

The structure of this report proceeds as follows. First, we present an overview summarizing our data sources and listing the calculations to be performed. Next, these data and calculations are described in more detail. Brief concluding remarks follow.

OVERVIEW

The NACCS model requires input data on the cost of initial specialized skill training for enlisted graduates of a given quality type (here, a combination of mental group and educational level) in a

given rating. Contact with key offices in Navy's training establishment revealed that cost data at this level of disaggregation were not available. Accordingly, we had to devise a procedure for constructing these costs. The procedure is described in this memorandum.

We proceed in two basic steps. First, using a costing model developed by the Training Analysis and Evaluation Group (TAE), we obtained costs per graduate where available for each course in every rating pipeline. Since these costs are not differentiated by quality type, we further disaggregate them by combining individualized Navy Integrated Training Resources Administration System (NITRAS) data with Navy Enlisted Master Records (EMRs). From this we are able to compute school attrition as a function of quality and convert it to cost per graduate for each quality type.

The quality of students should also have other effects on training costs. For example, actual time spent under instruction and number of instructors required are probably functions of student quality. However, because of data shortcomings, we do not attempt to quantify these effects.

This discussion will consist of three parts. We begin with a short description of the data sets. This will be followed by an explanation of the calculations needed to construct cost per graduate. A summary and some concluding remarks will follow.

DATA SETS

There are three types of information necessary to construct our estimates of cost per graduate by quality type and rating. First, we must know which initial skill training courses are required for each rating and their proper sequence; that is, we must know the training pipelines. Next, we need the cost per graduate for each course in a pipeline. Lastly, we need to know the attrition from each course by quality type. The discussion below includes the source of our information and a short description of each data set.

Training pipeline information has been provided by CNET in the form of an official directive [2]. This directive lists the planned sequence of A-school courses for each rating. A sample listing for the STS rating is shown in table 1 (some data is intentionally left out). While this example is more complex than most rating pipelines, it does show the options we must consider in our cost calculations.

TABLE 1
SAMPLE A-SCHOOL PIPELINE

	<u>CIN</u>	<u>CDF</u>	<u>Location</u>	<u>Course length (days)</u>
1.	A-060-0011	6342	NEW LONDON	39
2.	A-130-0029	6172	FLEASWTRACENPAC	54
3a.	A-130-0188	6402	FLEASWTRACENPAC	26
3b.	A-130-0189	6401	FLEASWTRACENPAC	26
3c.	A-130-0190	6460	FLEASWTRACENPAC	33
3d.	A-130-0207	600A	FLEASWTRACENPAC	40
4.	A-100-0010	6277	NTC S. DIEGO	64

The items of interest are contained in the first and third columns. The former lists the sequence of courses in numerical order. Lower case letters are used to distinguish different tracks in a sequence. In this example then, we actually have four separate course sequences: 1, 2, 3a, 4; 1, 2, 3b, 4; 1, 2, 3c, 4; and 1, 2, 3d, 4. The third column lists the Course Data Processing (CDP) codes. With a few known exceptions, a CDP is unique to a rating and location. We use this fact to locate and extract data on costs and attrition for each course.

Our basic cost data is generated by the Incremental Costing Model developed by TAEG. (See [3]). The major advantage of the TAEG model is that it enables individual cost per graduate to accrue at the CDP level. Another feature of the model is its capability to permit changing the proportion of costs considered "fixed" or "variable" depending on the time horizon being examined. This means that the model can be used to estimate changes in costs for say, a one year surge in student throughput, or a permanent change in training load. We utilize cost estimates only for the latter case in NACCS. 1979 cost data are used in our calculations.

A final data set is needed to calculate attrition by quality type for each CDP. This proved to be a straightforward, but time consuming, procedure; we merged selected data from the EMR with the NITRAS Student Master File (SMF) [4] and from the resultant file were able to compute

enrollments, graduates and attrites. A subset of NITRAS data from 1979 is used here. It only includes non-prior service four year obligor males. By performing these computations for each quality type within individual CDPs we are able to derive cost per graduate as a function of quality.

CONSTRUCTION OF COST PER GRADUATE

Conceptually, cost per graduate should be simple to obtain — merely add up all costs incurred to create one graduate. However, complications arise because the NACCS model requires cost per graduate for each rating pipeline differentiated by quality types.

Differential Attrition

Let us first examine the differential attrition by quality type and how this influences cost per graduate. The Incremental Costing Model developed by TAEG bases cost computations on a construct called a work unit, which can be thought of as a student month. It is calculated as:

$$WU = K \times (G \times L + 0.5 \times E \times ATTR \times L + G \times L \times SR \times PR)$$

where K - Constant which converts weeks to months

G - Graduates

L - Course length in weeks

E = Enrollments

ATTR - Attrition rate (percent of enrollments)

SR - Setback rate (percent of graduates)

PR - Proportion of course repeated due to setback

0.5 - Assumption that, on average, attrites complete half the course before leaving

Some algebraic manipulation* converts this to work units graduate:

$$\frac{WU}{G} = K \times L \times (1.0 + 0.5 \times (\text{ATTR}/(1.0-\text{ATTR})) + SR \times \dots$$

This latter equation shows that the ratio of work units per graduate for two different quality types in the same CDP becomes a function of attrition and setback only. With regard to setback, we chose to leave the setback product fixed across quality types for a given CDP. Since the product, $SR \times PR$, is generally less than 0.05, the error in computing work unit ratios is under 1 percent. For our purposes, this "error" is even smaller inasmuch as setback due to such reasons as hospitalization or emergency leave would clearly not be quality-dependent.

Returning to the last equation, we calculate work units per graduate based on aggregate data (denoted by A), and work units per

* Divide by G, factor out L, and make use of the fact that $G = E \times (1.0-\text{ATTR})$.

graduate based on different quality types (denoted by D_j). Then for each CDP, the set of D_j/A ratios represents proportional differences in training costs due to variances in attrition across quality types. For example, if there were three quality types and the computed ratios were 0.9, 1.0, and 1.1, it would indicate that the first group is 10 percent less expensive to train than the second, while the third group costs 10 percent more to train than the second. These ratios will be used to adjust the cost of each CDP to take into account the effect of differential attrition by different quality type individuals in that CDP.

Pipeline Cost

The cost per graduate for a given rating pipeline is logically an accumulation of the costs of individual courses which make up the pipeline. This is somewhat complicated, because pipeline courses have different costs and different attrition rates. The following example shows how we calculate these costs. Assume a pipeline contains courses XXX1, XXX2, and XXX3, with costs per graduate, C_1 , C_2 , and C_3 , and attrition rates, 0.25, 0.33, and 0.5 respectively. Then to obtain one pipeline graduate, it can be shown that four individuals must enter the pipeline. This results in obtaining three graduates of course XXX1, two from course XXX2, and one from course XXX3. The total cost to obtain a pipeline graduate becomes

$$C_1 \times \frac{1}{(1-0.5)(1-0.33)} + C_2 \times \frac{1}{(1-0.5)} + C_3 \times 1$$

or

$$C_1 \times 3 + C_2 \times 2 + C_3.$$

The inclusion of quality types in this computation is a direct extension of the preceding attrition discussion, with cost per graduate and attrition subscripted by quality type. For example, if there are P pipelines, 4 quality types, and a pipeline has n_i courses, and if $PCOST_{ij}$ is the cost of the i th pipeline for the j th quality type; $COEF_{ijk}$ is the coefficient calculated above for the i th rating, the j th quality type, and the k th course in the pipeline; and C_{ijk} is the course cost; then $PCOST_{ij} = \sum_{k=1}^{n_i} C_{ijk} COEF_{ijk}$.

C_{ijk} is the cost of a given course in a given pipeline (C_{ik}) multiplied by the quality weight ratios (D_j/A) developed earlier. This creates a course cost per graduate weighted by the differential attrition due to different quality types. $COEF_{ijk}$ is a representation of the number of graduates from course k of quality type j who are necessary to result in one graduate from the end of pipeline i .

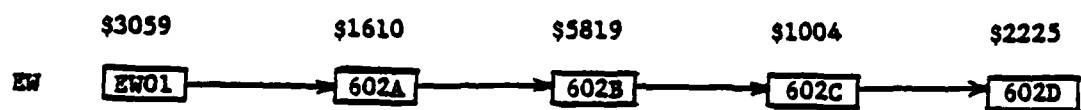
A sample of the calculations for three different rating pipelines is contained in table 2. The pipelines are shown in figure 1. Although EWS are six-year obligors, the pipeline is used to show the effect of high attrition rates on cost per graduate. The complete data sets are

shown in appendix A, along with the programs which were used in the calculations.

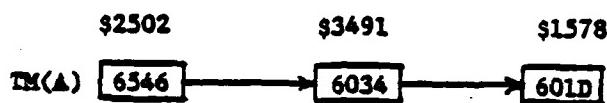
This example brings up several points about the actual data manipulation.

- o Several pipelines have parallel CDPs. For example, EWs can attend BE&E at any one of three different locations. The data for these CDPs were aggregated into one created CDP, EW01.*

* Also, there are several CDPs, particularly in BE&E courses, where the course at Orlando was significantly shorter and cheaper than at other locations. Phone conversations with the school houses revealed that this is because these individuals are shipped to the other BE&E locations to finish their training. We handled this by not including the Orlando CDPs.



6254
6275
6301



6551
6549
6318

Figure 1: Example Pipelines and Overall Cost of Each CDP

TABLE 2
SAMPLE CALCULATIONS

Rating	Quality Type	Costs and Coefficients by CDP and Quality Type						Pipeline Cost by Quality Type	
		4	5	6	7	8	9	10	11
BU	1-3U HSC	3150	1.14	1596	1.11	5869	1.03	983	1.02
	3L-5 HSC	3395	1.35	1747	1.10	5950	1.00	978	1.00
	1-3U NMISG	3443	1.10	1586	1.08	5892	1.00	978	1.00
	3L-5 NMISG	4253	1.50	1954	1.00	5674	1.00	978	1.00
TM(A)									2194
	1-3U HSC	2417	1.10	3494	1.00	1557	1.00		1.00
	3L-5 HSC	2645	1.02	3359	1.00	1559	1.00		1.00
	1-3L NMISG	2667	1.18	3468	1.09	1672	1.00		1.00
	3L-5 NMISG	6732	1.13	3534	1.00	1559	1.00		1.00
TM(B)									1.00
	1-3U HSC	961	1.00	2461	1.00				7755
	3L-5 HSC	1060	1.06	2533	1.00				7654
	1-3U NMISG	1025	1.08	2563	1.00				8610
	3L-5 NMISG	1111	1.20	2706	1.00				12706

Notes: (1) Costs in columns 4, 6, 8, ... are the average costs from figure 1 multiplied by the quality weights in table A-6-1.

(2) Coefficients in columns 5, 7, 9, ... are

$$\text{Coeff}_k = \frac{1}{\sum_{k=k+1}^{n_1} \text{PSURV}_{kk}}$$

$$k = 1, \dots, (n_1 - 1) \text{ if } n_1 > 1$$

$$\text{Coeff}_{n_1} = 1$$

where PSURV is the probability of an individual of a particular quality type graduating a given CDP, and n_1 is the number of CDPs in the pipeline.

- o The programs that calculate the cost per graduate of the pipeline break the costing into two parts. First, they calculate the cost of getting one individual of a given quality type through a given CDP (C_{ijk}). Then the effects of attrition in later CDPs on the number of people necessary in a given CDP are calculated ($COEF_{ijk}$).
- o Finally, at first glance it would appear that the weighted average of the quality weights should be one (see table A-6-1). This is not the case because we had to merge data sets with different attrition rates at the same time the quality weights were calculated. For example, if attrition was higher in the data set used for attrition purposes than it was in the data used for costing, this would result in quality weights whose weighted average is higher than one.

SUMMARY

This paper reports the data sources, methods of calculation, and results of our effort to construct rating- and quality-specific costs per graduate from the Navy's initial specialized skill training (A-school) pipelines. While C and F schools were not examined here, the methods used could be applied to this training, though pipeline information is much harder to obtain for these schools. (On a related topic, six year obligor pipelines, see [5].) Also, these estimates

could be augmented by estimates of the OJT costs attributable to these individuals. In this way, these costs could be used as one step in the development of more refined estimates of replacement costs for Navy enlisted personnel. (For a first step along these lines, see [6].) Also, these costs could be combined with data on job performance (e.g. [7] and [8]) to begin a more complete analysis of cost-benefit tradeoffs between first-timers and careerists (e.g. [9]).

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- [1] Center for Naval Analyses Study, "Balancing Accession and Retention (Final Report of the Navy Comprehensive Compensation and Supply Study)," by Deborah Clay-Mendez, et al., Unclassified, forthcoming
- [2] "Navy Enlisted Initial Skill Rating Pipelines," CNETNOTE 1514, Code N-36, 16 March 1981; CNET Naval Air Station, Pensacola, Fla. 32508
- [3] Training Analysis and Evaluation Group (TAEG) Technical Report No. 77, "Incremental Costing Model for Use with the CNET Per Capita Cost Data Base: System 1," (W. Swope, C. Yelvington, J. Corry), November 1979, CNET Orlando, Fla.
- [4] "Navy Integrated Training and Resources Administration System (NITRAS) Student Master File (SMF): Users Manual," MIISA Document No. 00062-020 UM-08, CNET MIISA Code 22, NAS Pensacola, Fla. 32508
- [5] Rehab, Inc., "The Six-Year Obligor Pipeline: An Interim Report," by David Rodney and Kenneth Goosens, May 1982, Falls Church, Va.
- [6] Center for Naval Analyses, Memorandum (CNA)82-1357, "Replacement Costs for Navy First-Term Personnel by Rating," by Ellen Balis and Deborah Clay-Mendez, Unclassified, 3 September 1982
- [7] Rand Corporation R-2191-ARPA, "Specialty Training and the Performance of First-Term Enlisted Personnel," by R. M. Gay and M. J. Albrecht, Unclassified, Apr 1979
- [8] CNA, Professional Paper 363, "Personnel Substitution and Navy Readiness," by Alan J. Marcus, Unclassified, Oct 1982
- [9] CNA, Memorandum 82-1525, "The Growth of Productivity in the First Term," by Aline Quester and Alan J. Marcus, Unclassified, 8 Oct 1982

APPENDIX A
DATA AND PROGRAMS

TABLE A-1
DATA USED IN THE CALCULATION OF COST PER CDP
(TAEG DATA)

<u>CDP</u>	<u>Enrols</u>	<u>Course Length</u>	<u>Attrites</u>	<u>Attrition Rate</u>	<u>Setback Rate</u>	<u>Setback Proportion</u>	<u>Cost per Graduate</u>
EL01	593	60		0.04	0.05	0.10	3043
CE01	472	38		0.13	0.00	0.10	1861
CE02	203	56		0.06	0.03	0.10	3439
CP01	319	84		0.05	0.01	0.10	5403
CTP1	703	57		0.13	0.00	0.10	2821
GS01	1003	55		0.11	0.00	0.10	2700
EP01	69	73		0.08	0.01	0.10	4181
EP02	2202	54		0.16	0.00	0.10	2662
EC01	498	56		0.03	0.05	0.10	4514
ET01	1403	50		0.16	0.00	0.10	2450
ET02	937	145		0.16	0.40	0.10	8163
ET03	124	63		0.12	0.00	0.10	3113
ET04	1210	64		0.16	0.00	0.10	3140
ET05	931	191		0.16	0.40	0.10	11032
ET06	313	59		0.12	0.00	0.10	2422
ET07	131	117		0.16	0.40	0.10	6561
EL02	756	62		0.14	0.00	0.10	3059
FT01	683	63		0.16	0.00	0.10	3070
FT02	599	64		0.16	0.00	0.10	3166
FT03	337	62		0.13	0.00	0.10	3093
GP01	416	36		0.16	0.00	0.10	1768
GP02	433	36		0.15	0.00	0.10	1772
GPT1	287	38		0.16	0.00	0.10	1865
GS02	216	57		0.16	0.00	0.10	2810
GS03	553	35		0.13	0.00	0.10	1736
HT01	1437	21		0.02	0.01	0.10	1712
HT02	2239	55		0.04	0.01	0.10	2205
IC01	505	57	113	0.18	0.00	0.10	2932
SP01	757	42		0.07	0.14	0.10	2213
SI01	278	59		0.02	0.03	0.10	3427
TP01	765	21		0.12	0.00	0.10	1017
LT01	248	77		0.05	0.04	0.10	4645
130C	1742	42	49	0.01	0.00	0.10	1602
130E	1739	171	426	0.20	0.00	0.10	15869
3157	52	84	5	0.05	0.15	0.10	7967
1522	237	35	7	0.03	0.10	0.10	2142
5268	1871	39	603	0.17	0.15	0.10	2427
6001	804	40	15	0.04	0.12	0.10	1919
6005	621	42	43	0.06	0.15	0.10	2128

TABLE A-1 (Cont'd)

<u>CDP</u>	<u>Enrols</u>	<u>Course Length</u>	<u>Attrites</u>	<u>Attrition Rate</u>	<u>Setback Rate</u>	<u>Setback Proportion</u>	<u>Cost per Graduate</u>
6006	136	42	16	0.11	0.10	0.10	2598
601C	128	26	13	0.09	0.01	0.10	1672
601D	135	26	13	0.09	0.01	0.10	1673
601E	2073	4	1	0.00	0.00	0.10	1461
602A	427	19	23	0.05	0.20	0.10	1610
602B	402	68	22	0.05	0.20	0.10	5819
602C	358	12	20	0.05	0.10	0.10	1804
602D	348	26	19	0.05	0.30	0.10	2225
602E	163	43	47	0.22	0.25	0.10	3983
602F	485	75	37	0.07	0.15	0.10	3614
603A	288	33	6	0.02	0.15	0.10	2688
603B	257	26	6	0.02	0.15	0.10	2116
603F	63	19	1	0.02	0.00	0.10	2203
603G	135	54	13	0.09	0.00	0.10	3451
603H	128	40	12	0.09	0.02	0.10	2700
604A	64	68	1	0.02	0.20	0.10	5419
604B	61	26	1	0.02	0.15	0.10	2064
604C	61	19	1	0.02	0.05	0.10	1486
604D	61	26	1	0.02	0.06	0.10	2021
604E	68	112	12	0.15	0.15	0.10	10312
604F	64	112	2	0.03	0.01	0.10	7669
604G	44	105	3	0.06	0.01	0.10	7078
605A	16	68	1	0.04	0.28	0.10	6862
605B	15	19	1	0.04	0.09	0.10	1900
605C	14	26	1	0.04	0.15	0.10	2676
605D	248	64	55	0.18	0.25	0.10	6801
605E	1146	49	214	0.16	0.50	0.10	2368
605F	823	42	51	0.06	0.10	0.10	1943
606A	226	56	27	0.11	0.10	0.10	2945
606B	405	168	59	0.13	0.10	0.10	9060
606C	407	70	51	0.10	0.15	0.10	4265
607D	2064	46	42	0.02	0.30	0.10	2680
607E	896	56	29	0.03	0.21	0.10	3074
607F	12	126	4	0.25	0.05	0.10	15714
607G	25	77	7	0.22	0.05	0.10	7920
607H	31	74	7	0.18	0.03	0.10	4397
607I	117	56	3	0.03	0.03	0.10	3253

TABLE A-1 (Cont'd)

<u>CDP</u>	<u>Enrols</u>	<u>Course Length</u>	<u>Attrites</u>	<u>Attrition Rate</u>	<u>Setback Rate</u>	<u>Setback Proportion</u>	<u>Cost per Graduate</u>
6021	266	60	9	0.03	0.05	0.10	3421
6042	133	59	2	0.01	0.03	0.10	3755
6043	144	77	8	0.05	0.04	0.10	5063
6053	234	40	29	0.09	0.02	0.10	2522
6057	213	56	9	0.04	0.04	0.10	5649
6102	893	49	42	0.04	0.40	0.10	2132
6106	1012	55	54	0.05	0.00	0.10	2134
6108	381	75	8	0.02	0.01	0.10	3488
6115	311	82	22	0.07	0.10	0.10	3800
6119	960	21	23	0.02	0.00	0.10	1195
6120	477	21	7	0.01	0.01	0.10	2751
6125	2014	42	67	0.03	0.30	0.10	2337
6131	532	154	54	0.09	0.25	0.10	8040
6144	2598	56	421	0.14	0.06	0.10	3961
6146	929	119	228	0.24	0.65	0.10	10230
6149	179	84	9	0.05	0.03	0.10	5667
6161	248	105	12	0.05	0.50	0.10	7253
6167	533	56	49	0.08	0.05	0.10	3855
6172	194	69	9	0.04	0.15	0.10	3615
6183	254	66	18	0.07	0.20	0.10	3422
6210	2378	12	63	0.03	0.07	0.10	452
6212	869	12	21	0.03	0.07	0.10	452
6213	1492	12	39	0.03	0.07	0.10	455
6214	2134	12	56	0.03	0.07	0.10	451
6215	450	12	12	0.03	0.07	0.10	453
6216	188	12	5	0.03	0.07	0.10	452
6217	408	12	11	0.03	0.07	0.10	453
6218	2905	9	77	0.03	0.07	0.10	339
6220	923	9	24	0.03	0.07	0.10	340
6221	545	9	14	0.03	0.07	0.10	338
6222	865	9	23	0.03	0.07	0.10	339
6224	1000	3	26	0.03	0.07	0.10	113
6226	1962	12	52	0.03	0.07	0.10	451
6230	1537	33	563	0.23	0.00	0.10	1435
6231	666	34	193	0.23	0.00	0.10	1477
6232	393	35	114	0.23	0.00	0.10	1524
6233	639	33	186	0.23	0.00	0.10	1435
6235	2096	35	609	0.23	0.00	0.10	1525
6236	0	35	0	0.23	0.00	0.10	1500

TABLE A-1 (Cont'd)

<u>COP</u>	<u>Enrcls</u>	<u>Course Length</u>	<u>Attrites</u>	<u>Attrition Rate</u>	<u>Setback Rate</u>	<u>Setback Proportion</u>	<u>Cost per Graduate</u>
6237	325	32	94	0.23	0.00	0.10	1392
6239	1135	125	361	0.24	0.00	0.10	6915
6240	398	125	127	0.24	0.00	0.10	6917
6241	238	125	76	0.24	0.00	0.10	6926
6242	388	95	123	0.24	0.00	0.10	5250
6245	306	138	27	0.08	0.25	0.10	8013
6248	453	64	80	0.15	0.00	0.10	3062
6249	370	66	65	0.15	0.00	0.10	3153
6254	303	67	53	0.15	0.00	0.10	3202
6255	415	50	73	0.15	0.00	0.10	2391
6256	428	52	76	0.15	0.00	0.10	2484
6257	226	63	49	0.15	0.00	0.10	3008
6258	1318	57	233	0.15	0.00	0.10	2723
6259	179	40	32	0.15	0.00	0.10	1913
6260	3175	22	223	0.08	0.10	0.10	2845
6261	1658	22	44	0.03	0.10	0.10	736
6262	4226	22	167	0.04	0.10	0.10	1830
6263	261	57	58	0.18	0.00	0.10	2931
6270	120	39	27	0.18	0.00	0.10	2012
6271	287	47	64	0.18	0.00	0.10	2423
6272	279	49	63	0.18	0.00	0.10	2517
6273	884	50	158	0.18	0.00	0.10	2571
6274	505	57	113	0.18	0.00	0.10	2932
6275	205	62	46	0.18	0.00	0.10	3195
6276	628	54	141	0.18	0.00	0.10	2779
6277	427	56	96	0.18	0.00	0.10	2822
6278	542	98	225	0.34	0.25	0.10	8864
6280	401	5	1	0.00	0.01	0.10	266
6281	192	5	1	0.00	0.01	0.10	264
6282	315	5	1	0.00	0.01	0.10	264
6284	742	5	1	0.00	0.10	0.10	271
6286	327	60	12	0.04	0.05	0.10	2736
6287	38	73	0	0.00	0.03	0.10	4004
6288	145	59	5	0.03	0.03	0.10	3126
6289	86	56	11	0.11	0.07	0.10	3693
6290	104	77	5	0.05	0.04	0.10	4065
6291	140	64	6	0.04	0.03	0.10	5066

TABLE A-1 (Cont'd)

<u>CDP</u>	<u>Enrols</u>	<u>Course Length</u>	<u>Attrites</u>	<u>Attrition Rate</u>	<u>Setback Rate</u>	<u>Setback Proportion</u>	<u>Cost per Graduate</u>
6292	289	56	5	0.02	0.06	0.10	3666
6297	0	2	0	0.00	0.00	0.10	100
6301	444	126	124	0.29	0.50	0.10	8840
6302	751	87	243	0.24	0.25	0.10	7069
6303	1196	25	90	0.07	0.00	0.10	1233
6304	379	28	28	0.07	0.00	0.10	1403
6305	371	29	28	0.07	0.06	0.10	1458
6306	248	55	19	0.07	0.00	0.10	2772
6307	173	34	13	0.07	0.00	0.10	1703
6308	324	53	24	0.07	0.00	0.10	2660
6309	352	51	26	0.07	0.06	0.10	2561
6310	281	29	21	0.07	0.00	0.10	1456
6311	279	30	21	0.07	0.00	0.10	1507
6312	223	27	17	0.07	0.00	0.10	1358
6313	213	27	16	0.07	0.00	0.10	1359
6314	139	30	10	0.07	0.00	0.10	1504
6315	656	29	49	0.07	0.00	0.10	1456
6316	371	20	28	0.07	0.00	0.10	1001
6319	129	42	8	0.06	0.10	0.10	3873
6320	493	34	19	0.04	0.15	0.10	2772
6337	122	77	17	0.12	0.00	0.10	6067
6339	1227	55	51	0.04	0.01	0.10	2263
6341	269	77	82	0.23	0.30	0.10	11375
6342	691	39	143	0.17	0.10	0.10	2476
6350	182	51	23	0.14	0.00	0.10	2628
6352	178	49	40	0.14	0.00	0.10	2516
6355	79	59	18	0.14	0.00	0.10	3027
6358	229	62	51	0.14	0.00	0.10	3147
6359	230	60	52	0.14	0.00	0.10	3085
6360	153	56	34	0.14	0.00	0.10	2885
6361	115	39	26	0.14	0.00	0.10	2003
6362	150	36	34	0.14	0.00	0.10	1853
6363	174	36	39	0.14	0.00	0.10	1848
6366	190	56	69	0.15	0.00	0.10	2674
6368	259	36	46	0.15	0.00	0.10	1721
6369	172	37	30	0.15	0.00	0.10	1773
6370	266	36	47	0.15	0.00	0.10	1720

TABLE A-1 (Cont'd)

<u>CDP</u>	<u>Enrcls</u>	<u>Course Length</u>	<u>Attrites</u>	<u>Attrition Rate</u>	<u>Setback Rate</u>	<u>Setback Proportion</u>	<u>Cost per Graduate</u>
6371	982	39	284	0.37	0.10	0.10	2475
6372	137	56	24	0.15	0.00	0.10	2682
6376	356	75	8	0.02	0.01	0.10	3486
6377	532	75	41	0.07	0.15	0.10	3618
6378	213	82	15	0.07	0.10	0.10	3796
6380	1816	22	9	0.00	0.00	0.10	1363
6381	809	14	2	0.00	0.00	0.10	970
6400	312	82	22	0.07	0.10	0.10	3797
6403	605	30	45	0.07	0.00	0.10	1504
6404	111	58	8	0.07	0.00	0.10	2904
6405	104	24	8	0.07	0.00	0.10	1201
6406	51	25	4	0.07	0.00	0.10	1244
6407	328	28	25	0.07	0.00	0.10	1409
6409	266	64	60	0.18	0.00	0.10	3293
6410	90	67	20	0.18	0.00	0.10	3465
6412	219	64	49	0.18	0.00	0.10	3296
6413	138	63	24	0.15	0.00	0.10	3002
6414	397	64	70	0.15	0.00	0.10	3057
6415	208	63	37	0.15	0.00	0.10	3014
6417	328	63	58	0.15	0.00	0.10	3013
6420	564	194	166	0.16	0.40	0.10	11365
6421	475	152	90	0.16	0.40	0.10	8546
6423	66	117	12	0.16	0.40	0.10	6573
6424	65	117	12	0.16	0.40	0.10	6547
6428	367	187	69	0.16	0.40	0.10	10525
6429	462	138	87	0.16	0.40	0.10	7765
6447	41	53	3	0.07	0.00	0.10	2645
6450	50	74	9	0.15	0.00	0.10	3553
6458	53	63	4	0.07	0.15	0.10	6206
6477	250	42	8	0.03	0.02	0.10	2642
6486	2220	49	211	0.49	0.00	0.10	3198
6487	1611	21	3	0.00	0.10	0.10	530
6429	834	28	56	0.06	0.00	0.10	1791
6492	2414	39	133	0.05	0.00	0.10	1301
6493	2394	29	24	0.01	0.00	0.10	989
6501	2508	42	275	0.09	0.25	0.10	1617
6506	1325	64	183	0.12	0.02	0.10	3104
6511	800	12	8	0.01	0.10	0.10	350

TABLE A-1 (Cont'd)

<u>CDP</u>	<u>Enrols</u>	<u>Course Length</u>	<u>Attrites</u>	<u>Attrition Rate</u>	<u>Setback Rate</u>	<u>Setback Proportion</u>	<u>Cost per Graduate</u>
6512	263	28	7	0.03	0.10	0.10	2423
6513	436	46	28	0.04	0.10	0.10	3507
6515	1726	77	131	0.07	0.25	0.10	3683
6516	672	63	59	0.08	0.10	0.10	3069
6517	1288	49	75	0.06	0.20	0.10	2470
6518	1814	63	161	0.08	0.25	0.10	2939
6519	505	70	37	0.07	0.10	0.10	5060
6521	319	41	6	0.02	0.12	0.10	2423
6522	597	52	24	0.04	0.10	0.10	2236
6527	391	25	4	0.01	0.10	0.10	2359
6528	584	45	30	0.05	0.14	0.10	1774
6530	209	64	10	0.05	0.20	0.10	3579
6537	491	81	133	0.21	0.70	0.10	4808
6542	95	28	7	0.07	0.00	0.10	1408
6543	181	31	14	0.07	0.00	0.10	1555
6544	149	40	33	0.18	0.00	0.10	2058
6545	223	35	39	0.15	0.00	0.10	1667
6546	308	39	64	0.17	0.20	0.10	2502
6549	158	21	35	0.18	0.00	0.10	1076
6551	236	21	42	0.15	0.00	0.10	1003
6568	63	19	1	0.02	0.00	0.10	2203
6569	60	19	1	0.01	0.00	0.10	2841
6570	45	19	1	0.02	0.00	0.10	3170
6571	37	19	0	0.01	0.00	0.10	4250
6572	59	19	1	0.02	0.00	0.10	2681
6573	106	19	2	0.02	0.00	0.10	3338
6574	60	19	1	0.02	0.00	0.10	3539
6582	45	19	1	0.01	0.00	0.10	4027
8562	100	22	2	0.02	0.00	0.10	4171
8563	450	28	2	0.00	0.00	0.10	2789
8564	210	42	0	0.00	0.00	0.10	4230
8565	5	7	1	0.17	0.00	0.10	10912

TABLE A-2
ATTRITION DATA FOR 4Y0 NPS MALES IN A SCHOOL
BY CDP AND QUALITY TYPE (SMF Data)

CDP	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG	
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
E001	2	6	1	1	.0090	.0400	.0323	.0588
CE01	222	150	31	17				
CE02	12	15	5	4	.1026	.2540	.2500	.4444
CE02	117	63	20	9				
CP01	10	2	3	0	.6969	.0426	.1667	.0000
CP01	110	47	12	4				
CTN1	3	3	4	1	.0246	.0288	.1600	.0625
CTN1	122	104	25	16				
CS01	33	5	8	0	.0851	.1523	.2162	.0000
CS01	388	26	37	1				
EA01	46	6	18	0	.0799	.1395	.2400	.0000
EA01	576	43	75	5				
EP01	3	0	0	0	.0356	.0000	.0000	.0000
EP01	54	3	1	1				
ET01	194	149	107	47	.1249	.3004	.5000	.5875
EC01	1553	456	214	89				
ETN1	4	1	1	1	.0299	.0079	.0357	.0385
ETN1	134	126	28	26				
ETN2	61	2	1	0	.0619	.3333	.1111	.0000
ETN2	986	6	5	0				
ETS1	228	2	3	0	.2486	.4000	.5000	.0000
ETS1	517	5	6	0				
ET01	1	0	0	0	.3333	.0000	.0000	.0000
ET01	3	1	0	0				
ET02	288	13	70	1	.2284	.2097	.3665	.3333
ET02	1261	62	191	3				
ET11	223	15	33	3	.1857	.2542	.2705	.7500
ET11	1201	55	122	4				
ET11	30	3	12	1	.0626	.3000	.2857	.9000
ET11	479	10	42	1				
ET11	9	1	4	0	.1071	.1667	.2222	.0000
EN01	84	6	18	0				
EN01	70	6	23	1	.1852	.2857	.3026	.5000
FTG1	378	21	76	6				
FTG1	125	11	55	2	.2735	.3143	.4741	.6000
FTP1	457	35	116	5				
FTP1	98	11	34	2	.2226	.2821	.3178	.4286
	429	35	107	7				

TABLE A-2 (Cont'd)

CDP	Attrites and Enrols by Quality Type						Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG			
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
F701	29	3	10	0	.2593	.2308	.2439	.0000		
GPG2	182	13	41	0						
GPM1	43	25	53	24	.2275	.2841	.4732	.5333		
GPM1	189	82	112	45						
GAT1	21	13	28	17	.2442	.2955	.3836	.7391		
GAT1	86	44	73	23						
GSE1	17	20	46	24	.2152	.4762	.5823	.7039		
GSE1	79	42	75	34						
GSM1	29	2	8	1	.2929	.4000	.3333	.9000		
GSM1	99	5	24	1						
HT01	29	2	8	1	.1374	.1667	.1778	.2500		
HT01	211	12	45	4						
HT02	7	2	7	9	.0106	.0051	.0270	.0776		
HT02	661	395	255	116						
IC01	38	21	39	22	.0429	.0423	.1024	.1507		
IC01	886	486	381	146						
IC01	63	40	29	16	.0570	.1961	.3372	.5000		
SP01	678	284	66	32						
SP01	6	9	22	9	.0345	.1098	.1287	.1324		
S001	172	82	171	62						
S001	1	2	1	1	.0145	.0220	.0400	.0833		
TP01	69	91	25	12						
TP01	2	21	6	9	.0183	.1842	.1333	.2500		
TP01	105	114	45	36						
L701	3	2	2	2	.0435	.0253	.0909	.1333		
1300	69	79	22	15						
1300	61	0	0	0	.0201	.0000	.0000	.0000		
1300	3032	13	20	1						
1300	685	0	5	0	.3158	.0000	.3125	.0000		
3197	2169	7	16	1						
3197	1	1	2	2	.0270	.1667	.4000	.9000		
3522	37	6	5	2						
3522	0	0	0	2	.0000	.0000	.0000	.5000		
5200	7	10	2	4						
5200	243	113	254	132	.1273	.2409	.3138	.4475		
—	1909	469	537	295						

TABLE A-2 (Cont'd)

CDP	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG	
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
6001	3	17	5	12	.0126	.1024	.1084	.1935
6005	239	166	83	62				
6006	6	4	15	8	.0441	.0741	.1136	.1600
6010	136	54	132	50				
6010	0	5	7	1	.0000	.1786	.1795	.0556
6010	36	28	35	18				
6010	0	1	0	0	.0000	.0476	.0000	.0000
6010	2	21	2	2				
6010	0	0	1	0	.0000	.0000	.0633	.0000
6016	17	8	12	2				
6016	2	1	3	1	.0009	.0008	.0073	.0025
6023	2203	1193	410	404				
6023	10	3	1	1	.0336	.1875	.0204	.3333
6028	298	16	49	3				
6028	17	1	3	0	.0661	.0909	.0732	.0000
602C	257	11	41	1				
602C	2	0	0	0	.0082	.0000	.0000	.0000
602C	245	11	37	0				
602C	2	0	0	0	.0230	.0000	.0000	.0000
6026	87	6	5	0				
6026	13	27	6	3	.1529	.2596	.4286	.6000
6027	85	104	14	5				
6027	28	7	10	1	.0548	.2333	.1408	.1111
603A	365	30	71	9				
603A	7	0	0	1	.0332	.0000	.0000	.9000
603E	211	9	31	1				
603E	0	0	0	0	.0000	.0000	.0000	.0000
603F	184	8	28	1				
603F	0	0	0	0	.0000	.0000	.0000	.0000
6034	2	1	0	1				
6034	10	1	5	2	.0317	.0192	.0781	.1111
6036	109	52	64	27				
6036	2	22	5	14	.1000	.1528	.2083	.2545
604A	20	144	24	55				
604A	1	0	0	0	.0172	.0000	.0000	.0000
604E	58	1	2	1				
604E	1	0	0	0	.0152	.0000	.0000	.0000
	52	1	6	1				

TABLE A-2 (Cont'd)

CDP	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG	
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
E04C	0	0	0	0	-0000	-0000	-0000	-0000
E04C	50	1	5	1	-0000	-0000	-0000	-0000
E04C	0	0	0	0	-0000	-0000	-0000	-0000
E041	38	1	5	1	-0000	-0000	-0000	-0000
E041	0	2	6	2	-0000	-1250	-2069	-3333
E04E	23	16	25	6	-0000	-0582	-1667	-1111
E04E	0	1	2	1	-0000	-0582	-1667	-1111
E047	34	17	12	5	-0000	-0909	-0000	-4000
E047	0	1	6	2	-0000	-0789	-0000	-0000
E05A	23	11	12	5	-0789	-0522	-0000	-0000
E05A	25	1	0	0	-0789	-0522	-0000	-0000
E05E	317	17	24	1	-0302	-0000	-0000	-0000
E05E	8	0	0	0	-0302	-0000	-0000	-0000
E05E	265	14	28	1	-0302	-0000	-0000	-0000
E05C	7	0	0	0	-0295	-0000	-0000	-0000
E053	237	14	17	0	-0317	-1579	-4667	-1667
E053	33	9	14	1	-1755	-1579	-4667	-1667
E057	188	57	30	6	-0317	-1608	-1616	-3333
E057	17	100	16	40	-0317	-0281	-0139	-0985
E059	329	622	99	120	-0281	-0139	-0985	-0500
E061	10	2	13	2	-0281	-0139	-0985	-0500
E061	356	144	132	40	-0281	-0139	-0985	-0500
E065	10	4	11	1	-0654	-0670	-3235	-2500
E065	153	46	34	4	-0654	-0670	-3235	-2500
E068	1	0	6	0	-1250	-0000	-0000	-0000
E068	8	1	0	0	-1250	-0000	-0000	-0000
E070	23	32	32	13	-1004	-2353	-4211	-4194
E070	225	136	76	31	-1004	-2353	-4211	-4194
E073	28	34	8	2	-0188	-0907	-0727	-0625
E073	1488	375	110	32	-0188	-0907	-0727	-0625
E076	17	9	8	0	-0266	-0577	-1356	-0000
E076	639	156	59	16	-0266	-0577	-1356	-0000
E077	2	0	4	1	-2857	-0000	-6667	-9000
E077	7	5	6	1	-2857	-0000	-6667	-9000
E077	2	1	3	2	-2857	-0769	-6000	-6667
E077	8	13	5	2	-2857	-0769	-6000	-6667

TABLE A-2 (Cont'd)

CDP	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG	
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
6078	2	0	0	0	-1111	.0000	.0000	.0000
6079	18	1	0	0	.0484	.0000	.1333	.0000
6081	3	0	2	2	.0484	.0000	.1333	.0000
6082	62	32	15	2	.0172	.0460	.0833	.0000
6082	2	4	1	0	.0222	.0385	.0000	.1111
6082	116	87	12	8	.0222	.0385	.0000	.1111
6083	1	2	0	1	.0222	.0385	.0000	.1111
6083	45	52	16	5	.0385	.0295	.0714	.1818
6083	2	2	1	2	.0385	.0295	.0714	.1818
6093	52	67	14	11	.0000	.0556	.0769	.1667
6093	0	3	1	2	.0000	.0556	.0769	.1667
6092	24	54	13	12	.0000	.0556	.0769	.1667
6102	2	1	1	0	.0278	.0139	.0556	.0000
6102	72	72	18	14	.0121	.0673	.0621	.1667
6106	7	7	10	5	.0121	.0673	.0621	.1667
6106	520	184	161	30	.0403	.0271	.0750	.1094
6108	18	7	15	9	.0403	.0271	.0750	.1094
6108	447	258	192	62	.0204	.0370	.1296	.2727
6115	4	0	0	6	.0142	.0000	.0000	.0000
6115	281	28	43	2	.0142	.0000	.0000	.0000
6115	2	2	7	3	.0204	.0370	.1296	.2727
6115	98	54	54	11	.0150	.0072	.0280	.0260
6115	7	2	6	8	.0150	.0072	.0280	.0260
6120	467	277	214	53	.0217	.0116	.0514	.0641
6120	0	0	1	1	.0000	.0000	.0222	.0435
6125	184	118	45	23	.0217	.0116	.0514	.0641
6125	15	7	19	16	.0217	.0116	.0514	.0641
6131	692	604	370	281	.0217	.0116	.0514	.0641
6144	53	5	8	0	.1021	.1389	.1176	.0000
6144	519	36	62	1	.1021	.1389	.1176	.0000
6146	120	103	100	64	.0925	.1090	.2740	.3404
6146	1297	945	365	186	.0925	.1090	.2740	.3404
6149	247	19	56	0	.2359	.3800	.3275	.0000
6149	1047	50	171	1	.2359	.3800	.3275	.0000
6161	1	2	3	1	.0127	.0282	.2000	.1111
6161	79	71	15	5	.0127	.0282	.2000	.1111
6161	17	0	0	0	.0702	.0000	.0000	.0000
6161	292	5	20	0	.0702	.0000	.0000	.0000

TABLE A-2 (Cont'd)

<u>CDP</u>	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	<u>HSG</u>		<u>NHSG</u>		<u>HSG</u>		<u>NHSG</u>	
	<u>I-3U</u>	<u>3L-5</u>	<u>I-3U</u>	<u>3L-5</u>	<u>I-3U</u>	<u>3L-5</u>	<u>I-3U</u>	<u>3L-5</u>
6167	24	4	8	1	.0537	.0569	.1455	.1111
6182	443	44	53	9				
	3	0	2	1	.0455	.0000	.0952	.1256
	66	31	21	8				
6183	3	1	2	2	.0469	.0303	.0741	.1176
6210	64	33	27	17				
	16	15	10	11	.0260	.0153	.0441	.0748
6212	571	978	227	147				
	1	10	4	5	.0118	.0415	.0870	.0505
6213	85	241	46	55				
	3	11	5	7	.0200	.0265	.0556	.0707
6214	150	409	94	95				
	4	23	18	6	.0175	.0399	.0833	.0496
6215	228	576	132	121				
	1	1	1	0	.0161	.0370	.0357	.0000
6216	62	27	26	11				
	0	1	0	1	.0000	.0476	.0000	.1667
6217	43	21	11	6				
	2	1	2	1	.0272	.0208	.0571	.0765
6218	72	48	35	12				
	10	6	14	1	.0137	.0157	.0394	.0132
6220	730	383	355	76				
	7	0	8	1	.0174	.0000	.0530	.1429
6223	403	40	151	7				
	1	1	3	0	.0037	.0417	.0395	.0000
6222	268	24	76	6				
	2	0	4	0	.0062	.0000	.0678	.0000
6224	324	15	55	5				
	23	3	5	0	.0615	.0698	.0811	.0000
6226	374	43	111	8				
	1	7	12	16	.0056	.0170	.0992	.1260
6230	179	412	131	127				
	170	19	141	7	.1272	.1281	.3365	.4375
6231	1337	101	415	16				
	75	13	46	3	.1913	.3095	.3151	.4286
-	392	42	146	7				

TABLE A-2 (Cont'd)

CDP	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	HSG		NHSG		HSG		NSHG	
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
6232	38	3	27	5	.1315	.1575	.3506	.8333
6233	289	19	77	6	.1472	.1429	.1733	.5000
6235	53	2	13	2	.2692	.3385	.4479	.5158
6236	360	14	75	4	.780	.390	.355	.95
6237	210	132	155	45	.5000	.4667	.3333	.7000
6238	16	30	12	10	.3103	.4848	.6000	.8462
6239	18	16	15	11	.2150	.3506	.4566	.2222
6240	58	33	25	13	.05	.15	.43	.2
6241	276	27	142	2	.2553	.4412	.3707	.5000
6242	1284	77	311	9	.2548	.3684	.3529	.0000
6243	66	7	18	8	.357	.19	.51	.1
6244	59	3	25	0	.1653	.2727	.3472	.0000
6245	357	11	72	2	.0408	.1667	.0714	.0000
6246	4	1	1	0	.98	6	.14	1
6247	77	5	36	1	.2533	.3214	.4865	.5000
6248	304	28	74	4	.64	5	.22	.2
6249	64	5	22	2	.2105	.3333	.3099	.3333
6250	304	27	71	6	.30	3	.13	.1
6251	106	7	25	1	.2830	.4286	.5200	.5000
6252	106	7	25	2	.0823	.9000	.0000	.0000
6253	34	1	0	0	.413	1	.2	.0
6254	413	1	0	0	.0205	.0000	.0000	.0000
6255	3	0	0	0	.6	2	.1	.0
6256	146	2	1	0	.0857	.5000	.3333	.0000
6257	70	4	9	0	—	1041	365	147
6258	119	93	70	38	.1143	.2520	.4762	.5758
6259	8	8	?	66	.1818	.2857	.4286	.5000
—	44	28	7	2				

TABLE A-2 (Cont'd)

CDP	Attrites and Enrols by Quality Type						Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG			
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
6260	42	91	139	110	.0420	.0588	.1400	.1858		
6261	1600	921	991	592						
	6	20	20	22	.0050	.0360	.0664	.1122		
6262	611	555	301	196						
	57	60	81	58	.0189	.0245	.1684	.2057		
6263	3017	710	481	282						
	20	2	8	0	.0477	.1600	.2424	.0000		
6270	228	28	23	2						
	2	4	2	1	.0606	.3077	.2857	.9000		
6271	33	13	7	1						
	11	0	1	0	.0576	.0000	.2500	.0000		
6272	191	1	4	0						
	13	1	0	0	.0531	.5000	.0000	.0000		
6273	236	2	2	0						
	75	56	37	9	.1465	.4409	.5522	.6429		
6274	512	127	67	14						
	65	40	29	16	.0970	.1961	.3372	.5000		
6275	670	204	86	32						
	21	1	6	1	.2211	.3333	.3000	.9000		
6276	95	1	20	1						
	22	3	8	0	.0485	.1304	.1404	.0000		
6277	454	23	57	2						
	16	0	9	0	.0539	.0000	.2093	.0000		
6278	297	14	43	3						
	169	11	42	4	.3244	.3432	.4468	.5000		
6280	521	32	54	2						
	0	0	1	0	.0000	.0000	.0323	.0000		
6281	64	211	31	38						
	0	0	0	0	.0000	.0000	.0000	.0000		
6282	51	136	44	37						
	0	0	1	0	.0000	.0000	.0227	.0000		
6284	35	102	44	24						
	1	0	0	0	.0071	.0000	.0000	.0000		
6286	141	54	67	31						
	0	2	0	1	.0000	.0317	.0000	.1111		
6287	106	63	15	5						
	1	0	0	0	.0278	.0000	.0000	.0000		
	36	2	1	1						

TABLE A-2 (Cont'd)

<u>CDF</u>	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG	
	<u>1-3U</u>	<u>3L-5</u>	<u>1-3U</u>	<u>3L-5</u>	<u>1-3U</u>	<u>3L-5</u>	<u>1-3U</u>	<u>3L-5</u>
6288	0	0	1	0	.0000	.0000	.1111	.0000
6289	24	39	5	3				
	7	2	1	0	.1458	.1333	.3333	.0000
6290	48	15	2	2				
	1	0	1	0	.6558	.0000	.1250	.0000
6291	17	12	8	4				
	2	1	1	0	.0465	.0303	.1000	.0000
6292	43	33	16	7				
	2	0	0	1	.0323	.0000	.0000	.0833
6293	62	54	18	12				
	17	8	8	1	.0027	.0027	.0048	.0016
6294	4603	2948	1668	624				
	84	39	13	11	.3401	.4041	.5000	.6275
6302	247	146	26	16				
	62	35	24	10	.2594	.3431	.5000	.5556
6303	239	102	48	12				
	13	28	16	2	.0268	.1726	.2083	.2000
6304	485	162	46	15				
	0	2	0	0	.0000	.4000	.0000	.0000
6305	36	5	6	1				
	2	1	2	0	.0233	.5000	.3333	.0000
	24	2	6	0				
6306	19	2	4	1	.1073	.1818	.1290	.3333
6307	177	11	31	2				
	2	4	0	2	.0500	.1818	.0000	.3333
6308	40	22	6	6				
	14	1	3	0	.0551	.0625	.2000	.0000
6309	237	16	15	0				
	10	1	2	0	.0452	.0505	.1000	.0000
6310	221	11	20	2				
	9	0	2	0	.0703	.0000	.1000	.0000
6311	128	9	20	2				
	2	0	4	0	.0158	.0009	.1250	.0000
6312	101	7	32	5				
	3	1	6	2	.0625	.1250	.3333	.5000
	48	24	18	6				

TABLE A-2 (Cont'd)

CDP	Attrites and Errors by Quality Type				Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG	
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
6313	0	2	2	1	.0000	.1250	.3333	.2000
6314	19	16	6	5	.1538	.2000	.4545	.3333
6315	2	1	5	1	.1538	.2000	.4545	.3333
6316	13	5	11	1	.0259	.0484	.2857	.0000
6317	6	1	6	0	.0154	.1509	.1163	.2500
6318	201	62	21	7	.0154	.1509	.1163	.2500
6319	2	16	5	5	.0154	.1509	.1163	.2500
631A	103	106	43	36	.0000	.0000	.0000	.0000
631B	0	0	0	0	.0000	.0000	.0000	.0000
6320	27	8	1	2	.0164	.0513	.0000	.0000
6321	1	2	0	0	.0164	.0513	.0000	.0000
6327	61	39	12	1	.1077	.3750	.1071	.9000
6337	14	3	3	1	.0456	.0588	.1311	.2031
6339	130	8	28	1	.0456	.0588	.1311	.2031
6340	20	14	24	13	.0456	.0588	.1311	.2031
6341	439	238	183	64	.0456	.0588	.1311	.2031
6342	30	32	11	9	.1493	.3636	.2895	.6923
6343	201	88	38	13	.0456	.0588	.1311	.2031
6344	22	3	20	0	.0667	.1034	.2062	.0000
6350	330	29	97	5	.0667	.1034	.2062	.0000
6351	11	0	5	1	.1048	.4000	.2941	.3333
6352	105	1	17	2	.0245	.5000	.1818	.0000
6353	18	1	2	0	.0245	.5000	.1818	.0000
6355	88	2	11	0	.0245	.5000	.1818	.0000
6356	5	1	2	1	.1786	.5000	.2500	.9000
6358	28	1	8	1	.2720	.1667	.3333	.9000
6359	34	2	12	1	.3137	.2857	.4524	.9000
635S	125	12	36	1	.2720	.1667	.3333	.9000
6360	48	2	19	1	.3137	.2857	.4524	.9000
6366	153	7	42	1	.3137	.2857	.4524	.9000
6367	13	2	2	0	.1605	.3333	.1538	.0000
6368	41	6	13	1	.1605	.3333	.1538	.0000
6369	5	8	17	7	.1667	.4706	.4474	.7000
636A	30	17	38	10	.1667	.4706	.4474	.7000
636B	21	7	22	10	.3333	.4118	.5238	.6250
6363	63	17	42	16	.3333	.4118	.5238	.6250
	8	4	9	5	.2563	.2667	.3333	.7500
	27	15	27	12				

TABLE A-2 (Cont'd)

CDP	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	HSG		NHSG		HSG		NHSG	
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
6366	16	3	8	0	.1266	.2500	.3636	.0000
	127	12	22	0				
6368	13	5	15	8	.2203	.3103	.4130	.7273
	59	29	46	11				
6369	12	12	25	17	.2449	.4800	.7073	.7083
	49	25	41	24				
6370	22	18	31	14	.1746	.2535	.4429	.4828
	126	71	70	29				
6371	65	2	23	2	.0734	.0588	.1447	.3333
	886	34	155	6				
6372	24	1	6	0	.3380	.2500	.3750	.0000
	71	4	16	0				
6376	1	1	0	0	.0057	.0667	.0000	.0000
	174	15	15	0				
6377	24	2	3	0	.0710	.0769	.0556	.0000
	338	26	54	0				
6378	3	0	3	1	.0435	.0600	.0811	.1250
	69	28	37	8				
6380	5	1	2	0	.0067	.0019	.0109	.0000
	744	534	124	24				
6381	1	1	0	0	.0024	.0033	.0000	.0000
	413	305	72	32				
6400	12	5	6	7	.0670	.0752	.0952	.3182
	179	66	24	22				
6403	13	0	3	1	.0414	.0600	.0789	.5000
	314	15	32	1				
6404	2	1	2	0	.0541	.2000	.2857	.0000
	37	5	7	0				
6405	5	0	0	0	.0292	.0000	.0000	.0000
	171	2	1	0				
6406	4	0	1	0	.0200	.0000	.1667	.0000
	200	2	6	0				
6407	4	2	5	0	.0183	.1429	.1471	.0000
	218	14	34	2				
6409	53	3	12	1	.3011	.3750	.7500	.5000
	176	8	16	1				

TABLE A-2 (Cont'd)

CDP	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG	
	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5	1-3U	3L-5
E416	18	1	7	0	.1837	.3333	.2692	.0000
E412	98	3	26	0	.2602	.1429	.3171	.0000
E413	51	1	13	0	.1915	.2000	.1250	.0000
E414	196	7	41	0	.1487	.1250	.3333	.0000
E415	9	1	1	0	.0833	.6667	.0000	.0000
E417	47	5	8	0	.2233	.2258	.3364	.0000
E419	29	2	0	1	.1991	.2424	.2568	.6667
E420	195	16	24	2	.2675	.3333	.0000	.0000
E421	2	2	0	0	.0000	.0000	.0000	.0000
E422	24	3	4	0	.1837	.2500	.3077	.0000
E423	155	7	37	0	.1670	.2692	.2917	.9000
E424	694	31	118	1	.2274	.5000	.5000	.0000
E425	694	31	118	2	.1991	.2424	.2568	.6667
E426	139	8	15	3	.2675	.3333	.0000	.0000
E427	698	33	74	0	.0000	.0000	.0000	.0000
E428	130	1	0	0	.0000	.0000	.0000	.0000
E429	486	3	0	0	.0000	.0000	.0000	.0000
E430	0	0	0	0	.0000	.0000	.0000	.0000
E431	35	2	5	0	.0000	.0000	.0000	.0000
E432	9	1	4	0	.1837	.2500	.3077	.0000
E433	49	4	13	0	.1670	.2692	.2917	.9000
E434	84	7	14	1	.2274	.5000	.5000	.0000
E435	503	26	48	1	.1991	.2424	.2568	.6667
E436	98	1	3	0	.2675	.3333	.0000	.0000
E437	431	2	6	0	.0000	.0000	.0000	.0000
E438	0	0	0	0	.0000	.0000	.0000	.0000
E439	1	1	0	0	.0000	.0000	.0000	.0000
E440	1	0	0	0	.5000	.0000	.0000	.0000
E441	2	0	0	0	.0000	.0000	.0000	.0000
E442	4	0	1	0	.0741	.0000	.1667	.0000
E443	54	13	6	1	.0283	.0067	.0000	.0667
E444	3	1	0	4	.0046	.0020	.0069	.0052
E445	106	149	54	60	.0902	.1029	.1977	.2283
E446	70	63	155	84	.0046	.0020	.0069	.0052
E447	776	612	784	388	.0508	.0380	.0888	.0972
E448	3	1	2	1	.0431	.0243	.1140	.1773
E449	46	459	291	172	.0000	.0000	.0000	.0000
E450	13	7	23	14	.0000	.0000	.0000	.0000
E451	256	184	259	144	.0000	.0000	.0000	.0000
E452	57	50	45	35	.0000	.0000	.0000	.0000
E453	1321	553	392	220	.0000	.0000	.0000	.0000

TABLE A-2 (Cont'd)

<u>CDP</u>	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	HSG		NSHG		HSG		NSHG	
	<u>1-3U</u>	<u>3L-5</u>	<u>1-3U</u>	<u>3L-5</u>	<u>1-3U</u>	<u>3L-5</u>	<u>1-3U</u>	<u>3L-5</u>
6493	21	5	2	6	.0098	.0472	.0294	.1463
6501	2134	106	68	43				
	20	102	18	29	.0377	.1072	.0804	.2042
6506	531	998	224	142				
	10	60	24	23	.0556	.1242	.2034	.2054
6511	180	483	118	112				
	2	2	2	2	.0100	.0100	.0100	.0100
6512	200	200	200	200				
	1	4	1	1	.0162	.0308	.0196	.0333
6513	55	130	51	30				
	1	8	2	3	.0132	.0376	.0488	.0732
6515	76	213	41	41				
	41	14	24	9	.0858	.0528	.1034	.2000
6516	623	265	232	45				
	4	21	7	5	.0440	.0795	.1373	.0893
6517	91	264	51	56				
	5	18	10	9	.0307	.0419	.1087	.0811
6518	163	430	92	111				
	13	36	14	15	.0516	.0610	.1069	.1557
6519	232	590	131	122				
	5	2	6	6	.0286	.0303	.0779	.1463
6521	175	66	77	41				
	6	0	1	0	.0192	.0000	.0217	.0000
6522	312	8	46	2				
	4	2	9	3	.0137	.0180	.0947	.0732
6527	291	111	95	41				
	0	1	2	1	.0000	.0053	.0400	.0204
6528	63	188	50	49				
	4	4	13	1	.0200	.0412	.1711	.0455
6530	200	97	76	22				
	2	1	1	0	.0444	.0476	.0769	.0000
6537	45	21	13	3				
	78	11	40	2	.1801	.3438	.3252	.2727
6542	433	32	122	11				
	0	1	0	0	.0000	.5000	.0000	.0000
6543	6	2	0	0				
	0	0	0	0	.0000	.0000	.0000	.0000
	7	0	2	0				

TABLE A-2 (Cont'd)

<u>CDP</u>	Attrites and Enrols by Quality Type				Attrition Rates by Quality Type			
	<u>HSG</u>		<u>NHSG</u>		<u>HSG</u>		<u>NSEG</u>	
	<u>1-3U</u>	<u>3L-5</u>	<u>1-3U</u>	<u>3L-5</u>	<u>1-3U</u>	<u>3L-5</u>	<u>1-3U</u>	<u>3L-5</u>
6544	4	8	2	1	-1853	.0000	.2957	.9000
6545	38	3	7	1				
6546	25	2	6	0	-1506	.2222	.1667	.0000
6546	166	9	36	1				
6546	4	9	6	8	-1143	.2500	.2609	.8000
6545	35	36	23	10				
6545	0	2	1	0	-0000	.5000	.9000	.0000
6551	5	4	1	0				
6551	0	3	0	0	-0000	.7500	.4000	.0000
6568	1	4	1	0				
6568	0	0	0	0	-0000	.0000	.0000	.0000
6569	14	29	14	9				
6569	0	0	6	0	-0000	.0000	.0000	.0000
6570	5	14	3	2				
6570	0	0	0	0	-0000	.0000	.0000	.0000
6571	0	4	0	0				
6571	0	0	0	0	-0000	.0000	.0000	.0000
6572	0	4	1	0				
6572	0	0	0	0	-0000	.0000	.0000	.0000
6573	2	3	0	0				
6573	0	0	1	1	-0000	.0000	.2500	.2000
6574	12	26	4	5				
6574	0	0	0	0	-0000	.0000	.0000	.0000
6582	4	2	2	1				
6582	0	0	0	0	-0000	.0000	.0000	.0000
6582	7	9	14	6				
6562	1	0	1	0	-0023	.0000	.0435	.0000
6563	121	5	23	2				
6563	3	0	1	0	-0093	.0000	.0179	.0000
6564	324	20	56	8				
6564	0	0	1	1	-0000	.0000	.0270	.3333
6565	179	7	37	1				
6565	2	0	1	0	-0009	.0000	.3333	.0000
6565	22	1	?	0				

TABLE A-3

PIPELINES

<u>Rating</u>	<u>Pipelines Within Rating</u>	<u>Number of Courses in Pipeline</u>	<u>Course CDPs</u>
ABE	A	2	6290 6513
ABF	A	2	6282 6512
ABH	A	2	6291 6527
AC	A	2	6297 6278
AD	A	3	6297 6210 6501
AO	S	3	6297 6210 6568
AG	C	3	6297 6210 6569
AO	E	3	6297 6210 6570
AD	F	3	6297 6210 6571
AO	G H I	3	6297 6210 6572
AO	J K L	3	6297 6210 6573
AO	M N O P	3	6297 6210 6574
AO	Q	3	6297 6210 6575
AO	R	3	6297 6210 6576
AO	K	3	6297 6210 6577
AO	L	3	6297 6210 6578
AO	M	3	6297 6210 6579
AO	N	3	6297 6210 6581
AO	O	3	6297 6210 6582
AO	P	3	6297 6210 6583
AO	Q	3	6297 6210 603F
AE	A A	4	6297 6210 6235 6515
AG	A	1	6472
AK	A	2	6511 6522
AME	A	3	6297 6212 6516
AMH	A	3	6297 6213 6517
AMS	A	3	6297 6214 6518
AO	A	3	6297 6226 6506
AO	A	4	6297 6220 6231 6240
ASE	A	4	6297 6215 6237 6530
ASH	A	3	6297 6216 6182
ASM	A	3	6297 6217 6193
AT	A	4	6297 6219 6230 6239
AW	A	3	6297 6224 6537
AX	A	4	6297 6221 6232 6241
AZ	A	2	6511 6528
BT	A	3	6013 6250 6426
ST	B	3	6013 6260 6499
BU	A	1	BU01
CF	A	2	CF01 CF02
CM	A	1	CM01
CTA	A	1	6020
CTI	A	2	6203 5122

TABLE A-3 (Cont'd)

<u>Rating</u>	<u>Pipelines Within Rating</u>	<u>Number of Courses in Pipeline</u>	<u>Course CDPs</u>
CTI	B	2	6203 6123
CTI	C	2	6203 6140
CTI	D	2	6203 6321
CTI	E	2	6203 6322
CTI	F	2	6203 6328
CTI	G	2	6203 6329
CTI	H	2	6203 6330
CTI	I	2	6203 6331
CTI	J	2	6203 6326
CTI	K	2	6203 6323
CTM	A	5	CTM1 6051 6058 6050 6161
CTO	A	1	6053
CTR	A	1	6301
CTT	A	2	6302 6320
CTT	B	2	6302 6319
CTT	C	2	6302 3197
CTT	D	2	6302 4084
CTT	E	2	6302 6458
DK	A	2	6511 6061
DP	A	1	6167
DS	A	2	6501 6131
DT	A	1	6036
EA	A	1	EA01
EM	A	2	EM01 6070
EN	A	3	6013 6261 6487
EO	A	1	EO01
ETAE	A	2	ET01 ET02
ETSS	A	6	FTS1 604A 6043 604C 604B 5200
EW	A	5	EW01 6024 6023 602C 6020
FTG	A	2	FTG1 6377
FTGS	A	3	FTQ1 5200 6337
FTH	A	2	FTH1 6027
GMG	A	2	GMGL 6400
GMH	A	2	GMHL 6115
GMTA	A	2	GMT1 6378
GMT	A	1	6025
GSE	A	5	GSE1 601G 8562 8563 8565
GSM	A	5	GSM1 601G 8562 8563 8564
HM	A	1	HW01
HT	A	3	6547 HT01 HT02
IC	A	2	IC01 6073

TABLE A-3 (Cont'd)

<u>Rating</u>	<u>Pipelines Within Rating</u>	<u>Number of Courses in Pipeline</u>	<u>Course CDPs</u>
IM	A	1	6046
IS	A	1	6529
JO	A	1	6063
LI	A	1	6567
ML	A	1	6077
MN	A	3	601G 6262 6492
MN	B	3	601I 6262 6493
MN	A	1	6041
MR	A	1	6059
MS	A	1	6125
MU	A	1	6065
OM	A	1	6047
OS	A	1	6540
OT	A	1	6341
PC	A	1	6300
PH	A	1	6523
PM	A	1	6076
PN	A	2	651L 6102
PR	A	2	6254 6519
QM	A	1	6001
RH	A	2	6144 6380
RH	B	2	6144 6381
RP	A	1	6553
SH	A	1	6477
SX	A	2	6511 6059
SM	A	1	5491
STG	A	3	6015 6195 6276
STG	B	3	6015 6196 6276
STG	C	3	6015 6198 6276
STG	COEF	3	6015 6118 6276
STG	E	3	6015 541U 6276
STG	F	3	6015 4573 6276
STG	G	3	6015 604W 6276
STG	H	3	6015 604V 6276
STS	A	4	6342 6172 6402 6277
STS	B	6	6342 6172 6401 6277
STS	C	4	6342 6172 6460 6277
STS	D	4	6342 6172 600A 6277
SW	A	1	5491
TO	A	4	6297 6222 6233 6242
TH	A	2	6036 601C

TABLE A-3 (Cont'd)

<u>Rating</u>	Pipelines Within Courses in		<u>Course CDPs</u>
	<u>Rating</u>	<u>Pipeline</u>	
TM	S	3	6546 6034 6010
TM	C	2	TM01 6093
UT	A	1	UT01
YN	A	2	6511 6057

TABLE A-4
PARALLEL CDPs

<u>CDP</u>	<u>Number of Parallel Courses</u>	<u>CDPs</u>
AV01	3	6243 604J 604X
BW01	2	6286 6081
CE01	3	6259 6270 6307
CE02	2	6079 6289
CM01	2	6149 6291
CTM1	3	6257 6360 6308
DS01	3	6366 6269 6309
EA01	2	6078 6287
EM01	2	6258 6273
EO01	2	6097 6292
ET01	4	6414 6409 6417 6412
ET02	2	6420 6428
ETN1	4	6256 6271 6255 6272
ETN2	2	6429 6421
ET11	4	6415 6408 6416 6411
ET13	2	6424 6423
ET14	3	6430 6431 6436
ET15	3	6438 6432 6425
ET16	2	6434 6437
ET17	3	6427 6435 6426
ETS1	2	6450 6447
EW01	3	6254 6275 6306
FTG1	2	6248 6359
FT01	3	6413 6410 6404
FTM1	2	6249 6358
GMG1	2	6370 6362
GMM1	2	6368 6363
GNT1	3	6359 6361 6314
GSE1	2	6372 6355
GSM1	3	6543 6544 6545
HM01	2	6084 6085
HT01	2	6119 6120
HT02	2	6106 6339
IC01	1	6274
SM01	2	5005 6006
SW01	2	6288 6082
TM01	3	6551 6549 6318
UT01	2	6290 6083

TABLE A-5-1

PROGRAMS TO CALCULATE COST PER GRADUATE PER PIPELINE BY QUALITY TYPE

The program QUALITY/WEIGHTS calculates a weight based on differential attrition within each CDP. This weight is necessary so that the cost per graduate of each CDP will be different by quality type due to different attrition during each individual course. The weighted average of the weights is not unity because of differences in the attrition data between the data used in the TAEG model, and that extracted from the SMF file.

TABLE A-5-1

CALCULATE QUALITY WEIGHTS

```

FILE 11CKING=DISK-TITLE="TAEG/EXAMPLE",FILETYPE=8
FILE 12CKING=DISK-TITLE="SNF79/EXAMPLE",FILETYPE=8
FILE 6CKING=REMOTE,MAXRECSIZE=1200
FILE 14CKING=DISK-TITLE=PRACCS/QUALITY/WEIGHTS/EXAMPLE/44
SRESET FREE
      DIMENSION MMUNIT(20),ENROLS(10),ATTRS(10)
      REAL NETCDP,NETCDP
      DATA NITCDP*      /
      ICOP=0
      IQUAL=4
C=      START OF THE LOOP TO CALCULATE ONE CNET(AGGREGATE) WEIGHT
C=      AND IQUAL MMTRAS (DISAGGREGATE) WEIGHTS
C=      LOOP ENDS WITH "GO TO 10", WHICH OCCURS IN ONLY ONE OTHER
C=      LOCATION. ESCAPE IS "END=98" IN READ(21,100--).
C=      THE CODE SHOULD WORK IF THE TWO FILES DON'T MATCH CDP
C=      FOR XDP. BUT THE DATA USED DIDN'T MATCH. SO IT WASN'T TESTED
10      CONTINUE
C      READ AGGREGATE DATA
      READ(11,100-END=98)NETCDP,ENROL,ALENG,ATTR,SETR,SETP
100     FORMAT(4,3F6.0,3F6.2)
C      CREATES WORK UNITS FROM AGGREGATE DATA
      MTAEG=0.0005*ATTR/(1.0-ATTR)+SETR-SETP
      30      CONTINUE
      IF (NITCDP.GT.NETCDP) GO TO 10
      IF (NITCDP.LT.NETCDP) GO TO 35
C      READ DISAGGREGATE DATA
      READ(12,200)NITCDP,TENROL,TATTR,(ENROLS(I),I=1,8),
      (ATTRS(I),I=1,8)
      X      FORMAT(4,2F6.0,24X,16F4.0)
      IF (NITCDP.LT.NETCDP) GO TO 30
35      CONTINUE
      LIMITS ATTRITION RATES TO AVOID ZERO DIVIDES
      TATTR=0.0
      IF (TENROL.NE.0.0) TATTR=TATTR/TENROL
      IF (TATTR.EQ.1.0) TATTR=0.9
C      CREATES FOUR QUALITY TYPES(1-3U HSG,3L-5 HSG-SAME FOR NHSG)
C      ORIGINALLY 6 TYPES(1-2,3U,3L,4-53 BY HSG AND NHSG)
      IC1=-1
      00 20 I=1,IQUAL
          IC1=IC1+2
          IC2=IC1+1
          ATTRS(I)=ATTRS(IC1)+ATTRS(IC2)
          ENROLS(I)=ENROLS(IC1)+ENROLS(IC2)
          IF (.NOT.(NETCDP.IS.NITCDP)) GO TO 90
          ATTR=0.0
          IF (ENROLS(I).NE.0.0) ATTR=ATTRS(I)/ENROLS(I)
          IF (ATTR.GT.0.9) ATTR=0.9

```

```

C           CREATES WORK UNIT FOR DISAGGREGATE DATA
X           MUNIT(I)=(1.0 + 0.5*ATTR/(1.0-ATTR) *
C           SETS=SETP)
           CREATES QUALITY WEIGHT FOR PIPELINE CALCULATION
X           MUNIT(I)=MUNIT(I)/MUTAEG
20          CONTINUE
           WRITE(6,300)NETCDP,NITCDP,(MUNIT(I),I=1,IQUAL)
           WRITE(16,300)NETCDP,NITCDP,(MUNIT(I),I=1,IQUAL)
           FORMAT(2X,A6,IX,A6,10F7.4)
           END OF MAJOR LOOP
GO TO 14
C           PRINTS FOR NORMAL AND ABNORMAL TERMINATION
90          CONTINUE
           WRITE(6,400)NETCDP,NITCDP

400  FORMAT("OCDP'S DON'T MATCH: CNET=",A6," NITRAS=",A6)
GO TO 30
30          CONTINUE
           WRITE(6,500)NETCDP,NITCDP
500  FORMAT("ENCDED ON WRONG REAB. NETCEP =",A6," NITCDP =",A6)
GO TO 99
55          CONTINUE
           WRITE(6,600)NETCDP,NITCDP
600  FORMAT("ENCDED ON RIGHT REAB. NETCDP =",A6," NITCDP =",A6)
99          CONTINUE
           CLOSE(14,DISP=CRUNCH)
           WRITE(6,700)
700  FORMAT("***** LAST EXECUTABLE STATEMENT *****")
           END.

```

TABLE A-5-2
CALCULATE PIPELINE COSTS

The Program PIPELINES/COSTS calculates the cost per graduate of getting one person out of the last CDP including the cost of those who attrite along the way. It turns out that this calculation must be done from last course to first in order to know how many must enter the front end of the pipeline to produce one graduate.

```

FILE 11(KIND=0ISK,TITLE="SNF79/EXAMPLE",FILETYPE=8)
FILE 12(KIND=0ISK,TITLE="NACCS/QUALITY/WEIGHTS/EXAMPLE/44",FILETYPE=8)
FILE 13(KIND=0ISK,TITLE="PIPELINES/EXAMPLE",FILETYPE=8)
FILE 14(KIND=0ISK,TITLE="TAEG/EXAMPLE",FILETYPE=8)
FILE 16(KIND=0ISK,TITLE="NACCS/CISAG/COSTS/EXAMPLE/44")
FILE 6(KIND=REMOTE,MAXRESSIZE=22)
SRESET FREE
      DIMENSION IBOPC(10),ANITAT(300,8),ANITWTC(300,8),
      X      NICOPD(300),NICOPW(300),NETCDP(300),
      X      PCCOST(300),WATT(10,8),WHTS(10,8),
      X      ACCATE(10,8),AHOLD(10,8),PFECST(10),
      X      ALENG(300),MLENG(10),CPERO(10)
      REAL ICPS,NICOPD,NICOPW,NETCDP
      NMANY=999
      IQUAL=4
C      READS DATA IN TO HOLDING MATRIX
      DO 10 I=1,NMANY
C      DISAGGREGATE ATTRITION DATA
      READ(11-100,END=5) NICOPD(I),TENROL,TATTS,(ANITAT(I,J),J=1,
      X      8),(AHOLD(J),J=1,8)
      TATTR=TATTS/TENROL
      TATTR8=TATTR*3.0
      TATTRS=TATTR/3.0
C      CREATES FOUR QUALITY TYPES FROM EIGHT
      IC1=-1
      DO 15 J=1,IQUAL
          IC1=IC1+2
          IC2=IC1+2
          AHOLD(J)=AHOLD(IC1)+AHOLD(IC2)
          ANITAT(I,J)=ANITAT(I,IC1)+ANITAT(I,IC2)
C      LIMITS ATTRITION RATES TO AVOID ZERO DIVIDES
          AHOLD1=0.0
          IF SANITATE(I,J).NE.0.0) AHOLD1=AHOLD(J)/ANITAT(I,J)
          LIMITS ATTRITION RATES TO SMOOTH (NOT USED)
          IF (AHOLD1.GT.TATTR8) AHOLD1=TATTR8
          IF (AHOLD1.LT.TATTRS) AHOLD1=TATTRS

```

```

      IF K=ANOLD1.GT.0.9) ANOLD1=0.9
      ANITATE(I,J)=ANOLD1
15      CONTINUE
100      FORMAT(C4=2F6.0+24X+16F4.0)
150      FORMAT(1X,A6+2Y6.0+8F10.4)
C       READS QUALITY WEIGHTS
200      REABC(12+200,END=5) NICOPHC(I), (ANITWT(I,J),J=1,IQUAL)
      FORMAT(10X,C4+8F7.4)
C       READS COURSE COST, AND COURSE LENGTH
250      REABC(14+300,END=5) NETCOPC(I)=ALENG(I),PCCOST(I)
      FORMAT(C4,6X,F8.0+24X,F8.0)
300      CONTINUE
35      CONTINUE
40      CONTINUE
C       START OF INFINITE LOOP, ENDS AT "GO TO 20", WHICH
C       OCCURS IN ONE OTHER LOCATION. ESCAPE IS THROUGH "END=99"
C       IN "READ(15+400...)"
45      CONTINUE
C       READS IN PIPELINE TO BE COSTED
50      READ(15+400,END=99) RATING,PIPE,ICNUM,(ICOPSC(I),I=1,ICNUM)
      WRITE(6,420) RATING,PIPE,ICNUM,(ICOPSC(I),I=1,ICNUM)
55      FORMAT(C4=A2,1Z+1G(TX+C4))
60      FORMAT(C0+,A6,A3+15+1X,10A6)
C       EXTRACTS COST AND ATTRITION DATA FOR EACH COURSE IN
C       PIPELINE
65      IQUT=6

```

DO 25 ID=1,ICNUM

DO 55 I=1,300

ICUN=0

C ALL INPUT FILES WERE CONFORMABLE, THAT IS,

C THE FIRST, SECOND, ETC. COP IN EACH MATCH

C WITH ONE ANOTHER.

IF (.NOT.(ICOPSC(I)=NICOPC(I))) GO TO 30

ICON=1

.WLENGC(I)=ALENG(I)

55 40 J=1,IQUAL

MATT(I,I,J)=ANITATE(I,J)

MHTSC(I,I,J)=ANITWT(I,J)=PCCOST(I)

55 40 CONTINUE

55 666 WRITE(6,666) ICOPSC(I), (MATT(I,I,J),J=1,IQUAL),
 (MHTSC(I,I,J),J=1,IQUAL)

55 666 FORMAT(1X,A6+4F7.4+4F7.0)

55 666 IQUT=IQUT+1

55 666 IF (IQUT.EQ.ICNUM) GO TO 60

55 666 IF (ICUN.EQ.1) GO TO 25

30 CONTINUE

25 CONTINUE

500 WRITE(6,500) RATING,PIPE
 FORMAT(C0+, MATRICES NOT FILLED +++,1X,A6,A2)

50 GO TO 20

60 CONTINUE

C PERFORMS CALCULATION FOR LAST COP IN PIPELINE

65 75 J=1,IQUAL

PPEOST(J)=MHTSC(ICUN,J)

ALGATE(ICUN,J)=1.0

75 CONTINUE

```

C           IF PIPELINE HAS ONLY ONE CDP, GO TO END CALCULATIONS
C           AND PRINT
C           IF (ICNUN-E9-2) GE 80 TO 80
C           WORKING FROM NEXT-TO-LAST CDP TO FIRST, CALCULATE
C           THE NUMBER OF GRADUATES IN A GIVEN CDP NECESSARY TO
C           SET ONE GRADUATE FROM THE LAST CDP.

      HICNUN=ICRUM=1
      DO 85 I=1, HICNUN
        I=HICNUN+I-1
        IP1=I+1
        DO 80 J=I, I, EQUAL
          ALCATE(I,J)=ALCATE(IP1,J)/(1.0-WATT(IP1,J))
          PPECST(I)=PPECST(J)+WNTS(I,J)-ALCATE(I,J)
        CONTINUE
      CONTINUE
      CONTINUE
      CALCULATES TOTAL PIPELINE LENGTH, ASSUMING NO WAITING
      SLENG=0.0
      DO 83 I=1, ICNUN
        SLENG=SLENG+HLEN(I)
      CONTINUE
      CALCULATES COST PER DAY
      DO 82 I=1, I, EQUAL
        CPERO(I)=0.0
        IF I-SLENG.NE.0.0) CPERO(I)=PPECST(I)/SLENG
      CONTINUE
      WRITE(16,606) RATING,PIPE,(PPECST(I),I=1,I,EQUAL),SLENG
      WRITE(6,600) RATING,PIPE,(PPECST(I),CPERO(I),I=1,I,EQUAL),SLENG
      FORMAT(1X,2A6,8F10.2,F10.1)
      FORMAT(1X,2A6,4F10.2,F10.1)
      C           END OF MAJOR LOOP
      GO TO 20
      99 CONTINUE
      CLOSE(16,DISP=CRUNCH)

      700 WRITE(6,700)
      FORMAT(*0***** LAST EXECUTABLE STATEMENT *****)
      STOP
      END

```

TABLE A-6
RESULTS OF CALCULATIONS

TABLE A-6-1

QUALITY WEIGHTS

CDP	Quality Weights by Quality Type			
	1-3U HSG	3L-5 HSG	1-3U NHSG	3L-5 NHSG
SU01 SU01	0.9841	1.0000	0.9959	1.0102
CE01 CE01	0.9837	1.0389	1.0256	1.3027
CE02 CE02	1.0175	0.9906	1.0658	0.9692
CM01 CM01	0.9867	0.9889	1.0670	1.0058
CTM1 CTM1	0.9737	1.0413	1.0583	1.9305
DS01 DS01	0.9827	1.0182	1.0905	0.9418
EA01 EA01	0.9866	0.9585	0.9585	1.9535
EM01 EM01	0.9782	1.1091	1.3696	1.5632
EO01 EO01	0.9999	0.9888	1.0030	1.0044
ETN1 ETN1	0.9431	1.1413	1.9701	1.9130
ETN2 ETN2	1.0519	1.2097	1.3565	0.9151
ETS1 ETS1	1.1702	0.9362	0.9362	0.9362
ET01 ET01	1.0482	1.0342	1.1771	1.1413
ET02 ET02	1.0165	1.0663	1.0794	2.2374
ET11 ET11	0.9674	1.1368	1.1234	5.1489
ET13 ET13	0.9690	1.0042	1.0419	0.9161
EW01 EW01	1.0298	1.1397	1.1254	1.3871
FTG1 FTG1	1.0849	1.1223	1.3247	1.5973
FTM1 FTM1	1.0482	1.0924	1.1257	1.2554
FTJ1 FTJ1	1.3187	1.0701	1.0306	0.9305
GAG1 GAG1	1.0475	1.0942	1.3231	1.4343
GMM1 GM M1	1.3674	1.1116	1.2048	2.2287
GMT1 GMT1	1.0382	1.3231	1.5494	2.0087
GSE1 GSE1	1.1022	1.2174	1.1413	5.0217
GSM1 GSM1	1.0045	1.0235	1.3111	1.0856
HT01 HT01	0.9952	0.9924	1.0036	1.0315
HTC2 HTC2	1.1015	1.0012	1.0354	1.0664
IC01 IC01	0.9495	1.0110	1.1303	1.3516
SM01 SM01	0.9814	1.0223	1.0344	1.0367
SW01 SW01	0.9972	1.0110	1.0105	1.0348
TM01 TM01	0.9449	1.0419	1.0082	1.0922
JT01 JT01	0.9945	0.9871	1.0230	1.6491
1300 1300	1.0052	0.9950	0.9950	0.9950
130E 130E	1.0940	0.8889	1.0909	0.8839
3197 3197	0.9566	1.0475	1.2667	5.1811
3522 3522	0.9849	0.9849	0.9849	1.4725
5200 5200	0.9735	1.0504	1.1129	1.2707
6031 6031	0.9360	1.0351	1.0387	1.0950
6005 6005	0.9915	1.0077	1.0307	1.0605
6006 6006	0.9423	1.0438	1.0444	0.9698
6010 6010	0.9529	0.9757	0.9529	0.9529
	0.9529	0.9529	0.9962	0.9529

TABLE A-6-1 (Cont'd)

		Quality Weights by Quality Type			
<u>CDP</u>		<u>1-3U HSG</u>	<u>3L-5 HSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>
6016	6016	1.0005	1.0004	1.0037	1.0012
602A	602A	0.9914	1.0851	0.9848	1.2138
602B	602B	1.0086	1.0225	1.0125	0.9750
602C	602C	0.9786	0.9746	0.9746	0.9746
602D	602D	0.9862	0.9751	0.9751	0.9751
6020	6020	0.9565	1.0294	1.2007	1.5223
6027	6027	0.9918	1.1083	1.0421	1.0236
603A	603A	1.0068	0.9900	0.9900	0.3794
603B	603B	0.9900	0.9900	0.9900	0.9900
603F	603F	0.9899	0.9899	0.9899	0.9899
6034	6034	1.0010	0.9622	0.9933	1.0124
6036	6036	1.0052	1.0367	1.0781	1.1153
6044	6044	0.9986	0.9901	0.9901	0.9901
6048	6048	0.9996	0.9900	0.9900	0.9900
604C	604C	0.9899	0.9899	0.9899	0.9899
604D	604D	0.9900	0.9900	0.9900	0.9900
6041	6041	0.9200	0.9848	1.0383	1.1466
6046	6046	0.9848	1.0155	1.0832	1.0463
6047	6047	0.9691	1.0175	0.9691	1.2918
605A	605A	1.0210	1.0099	0.9801	0.9801
605B	605B	0.9949	0.9798	0.9798	0.9798
605C	605C	0.9946	0.9799	0.9799	0.9799
6053	6053	0.9971	0.8859	1.2888	0.9914
6057	6057	0.9406	1.0005	1.0010	1.1351
6059	6059	0.9832	0.9761	1.0219	0.9946
6061	6061	0.9750	0.9868	1.1655	1.0978
6065	6065	0.9970	0.9311	0.9311	0.9311
6068	6068	0.9521	1.0392	1.2257	1.2235
6070	6070	0.9994	1.0381	1.0279	1.0222
6073	6073	0.9983	1.0146	1.0608	0.9851
6076	6076	1.0284	0.8578	1.7112	4.6984
6077	6077	1.0224	0.9133	1.5314	1.7495
6078	6078	0.9575	0.9014	0.9014	0.9014
6079	6079	1.0098	0.9648	1.0603	0.9648
6081	6081	0.9934	1.0025	1.0254	0.9848
6082	6082	1.0063	1.0148	0.9950	1.0570
6083	6083	0.9939	0.9694	1.0118	1.0823
6093	6093	0.9530	0.9809	0.9926	1.0481
6097	6097	0.9936	0.9865	1.0024	0.9797
6102	6102	0.9861	1.0144	1.0116	1.0746

TABLE A-6-1 (Cont'd)

		Quality Weights by Quality Type			
CDP		1-3U HSG	3L-5 HSG	1-3U NHSG	3L-5 NHSG
6106	6106	0.9948	0.9879	1.0143	1.0344
6108	6108	0.9970	0.9899	0.9899	0.9899
6115	6115	0.9740	0.9824	1.0352	1.1431
6119	6119	0.9974	0.9935	1.0042	1.0365
6120	6120	0.9950	0.9950	1.0063	1.0175
6125	6125	0.9958	0.9908	1.0111	1.0179
6131	6131	1.0069	1.0250	1.0160	0.9540
6144	6144	0.9720	0.9814	1.0987	1.1625
6146	6146	0.9971	1.1215	1.0700	0.8709
6149	6149	0.9807	0.9845	1.0959	1.0352
6161	6161	1.0106	0.9756	0.9756	0.9756
6167	6167	0.9856	1.0062	1.0397	1.0181
6182	6182	1.0029	0.9799	1.0307	1.0488
6183	6183	0.9877	0.9792	1.0022	1.0275
6210	6210	0.9990	0.9925	1.0074	1.0244
6212	6212	0.9907	1.0040	1.0314	1.0338
6213	6213	0.9949	0.9984	1.0136	1.0221
6214	6214	0.9936	1.0052	1.0293	1.0104
6215	6215	0.9929	1.0037	1.0030	0.9849
6216	6216	0.9849	1.0093	0.9849	1.0927
6217	6217	0.9988	0.9953	1.0145	1.0256
6218	6218	0.9917	0.9927	1.0050	0.9914
6220	6220	0.9935	0.9849	1.0122	1.0664
6221	6221	0.9867	1.0061	1.0050	0.9849
6222	6222	0.9879	0.9849	1.0204	0.9849
6224	6224	1.0169	1.0216	1.0280	0.9849
6226	6226	0.9876	0.9933	1.0382	1.0554
6230	6230	0.9334	0.9709	1.0907	1.2084
6231	6231	0.9730	1.0651	1.0702	1.1963
6232	6232	0.9359	0.9516	1.1050	3.0452
6233	6233	0.9452	0.9426	0.9613	1.3051
6235	6235	1.0303	1.0925	1.2230	1.3335
6236	6236	1.3051	1.2507	1.0876	1.8851
6237	6237	1.0658	1.2795	1.5226	3.2627
6239	6239	0.9819	1.0968	1.2265	0.9870
6240	6240	1.0116	1.2045	1.1180	1.2955
6241	6241	1.0113	1.1155	1.0992	0.8636
6242	6242	0.9491	1.0256	1.0933	0.8636
6245	6245	0.9732	1.0529	0.9953	0.9593
6248	6248	1.0746	1.1366	1.3542	1.3784
6249	6249	1.0414	1.1426	1.1252	1.1426
6254	6254	1.1003	1.2835	1.4167	1.3764

TABLE A-6-1 (Cont'd)

<u>CDF</u>	<u>Quality Weights by Quality Type</u>			
	<u>1-3U HSG</u>	<u>3L-5 HSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>
6255 6255	0.9601	5.9541	0.9189	0.9189
6256 6256	0.9286	0.9189	0.9189	0.9189
6257 6257	0.9620	1.3784	1.1486	0.9189
6258 6258	0.9782	1.0737	1.3366	1.5425
6259 6259	1.0210	1.1027	1.2535	1.3784
6260 6260	0.9795	1.0108	1.0360	1.0670
6261 6261	0.9898	1.0031	1.0196	1.0466
6262 6262	0.9891	1.0246	1.0780	1.1054
6269 6269	0.9444	0.9512	1.0453	0.9011
6270 6270	0.9302	1.1013	1.0813	4.9560
6271 6271	0.9286	0.9011	1.0513	0.9011
6272 6272	0.9274	1.3516	0.9011	0.9011
6273 6273	0.9784	1.2565	1.4568	1.7121
6274 6274	0.9495	1.0110	1.1303	1.3516
6275 6275	1.0290	1.1264	1.0942	4.9560
6276 6276	0.9240	0.9687	0.9747	0.9011
6277 6277	0.9268	0.9011	1.0204	0.9011
6278 6278	0.9863	1.0034	1.1140	1.1890
6280 6280	1.0000	1.0000	1.0167	1.0000
6281 6281	1.0000	1.0000	1.0000	1.0000
6282 6282	1.0000	1.0000	1.0116	1.0000
6284 6284	1.0035	1.0000	1.0000	1.0000
6286 6286	0.9797	0.9957	0.9797	1.0406
6287 6287	1.0142	1.0000	1.0000	1.0000
6288 6288	0.9848	0.9848	1.0462	0.9848
6289 6289	1.0221	1.0142	1.1767	0.9420
6290 6290	1.0048	0.9745	1.0438	0.9745
6291 6291	1.0035	0.9949	1.0339	0.9797
6292 6292	1.0064	0.9900	0.9900	1.0347
6297 6297	1.0019	1.0013	1.0024	1.0008
6301 6301	1.0426	1.1075	1.2358	1.7142
6302 6302	1.0146	1.0873	1.2992	1.3949
6303 6303	0.9770	1.0644	1.0905	1.0842
6304 6304	0.9637	1.2850	0.9637	0.9637
6305 6305	1.0075	1.4456	1.2047	0.9637
6306 6306	1.0217	1.3703	1.3551	1.2047
6307 6307	0.9891	1.0703	0.9637	1.2047
6308 6308	0.9940	0.9959	1.0342	0.9637
6309 6309	0.9800	1.0119	1.0173	0.9637
6310 6310	1.0002	0.9637	1.0173	0.9637

TABLE A-6-1 (Cont'd)

<u>CDE</u>	<u>Quality Weights by Quality Type</u>			
	<u>1-3U HSG</u>	<u>3L-5 HSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>
6311 6311	0.9735	0.9637	1.0326	0.9637
6312 6312	0.9959	1.0326	1.2047	1.4456
6313 6313	0.9637	1.0326	1.2047	1.0842
6314 6314	1.0513	1.0242	1.3653	1.2047
6315 6315	0.9780	0.9882	1.1565	0.9637
6318 6318	0.9733	1.0494	1.0271	1.1244
6319 6319	0.9694	0.9694	0.9694	0.9694
6320 6320	0.9879	1.0060	0.9799	0.9799
6337 6337	0.9927	1.2170	0.9923	5.1489
6339 6339	1.0030	1.0102	1.0535	1.1043
6341 6341	0.9477	1.1156	1.0461	1.8273
6342 6342	0.9400	0.9598	1.0247	0.9079
6350 6350	0.9538	0.9011	1.0888	1.1264
6352 6352	1.0170	1.3516	1.0012	0.9011
6355 6355	0.9990	4.9560	1.0513	4.9560
6358 6358	1.0694	0.9912	1.1264	4.9560
6359 6359	1.1071	1.0813	1.2733	4.9560
6360 6360	0.9872	1.1264	0.9830	0.9011
6361 6361	0.9912	1.3016	1.2658	1.9524
6362 6362	1.1264	1.2165	1.3967	1.6520
6363 6363	1.0908	1.0649	1.1264	2.2527
6366 6366	0.9851	1.0721	1.1815	0.9189
6368 6368	1.0488	1.1257	1.2422	2.1441
6369 6369	1.0679	1.3430	2.0293	2.0347
6370 6370	1.0161	1.0750	1.2841	1.3477
6371 6371	0.9435	0.9360	0.9840	1.1327
6372 6372	1.1535	1.0721	1.1946	0.9169
6376 6376	0.9929	1.0252	0.9899	0.9899
6377 6377	1.0006	1.0033	0.9922	0.9642
6378 6378	0.9858	0.9641	1.0062	1.0323
6380 6380	1.0034	1.0009	1.0055	1.0000
6381 6381	1.0012	1.0015	1.0000	1.0000
6400 6400	0.9984	1.0032	1.0143	1.1869
6403 6403	0.9845	0.9637	1.0050	5.3005
6404 6404	0.9913	1.0042	1.1565	0.9637
6405 6405	0.9782	0.9537	0.9637	0.9637
6406 6406	0.9736	0.9637	1.0601	0.9637
6407 6407	0.9727	1.0440	1.0468	0.9637
6409 6409	1.0952	1.1714	2.2527	4.9560
6410 6410	1.0025	1.1264	1.0671	0.9011

TABLE A-6-1 (Cont'd)

<u>CDP</u>	<u>Quality Weights by Quality Type</u>			
	<u>1-3U HSG</u>	<u>3L-5 HSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>
BUB1 BUB1	0.9841	1.0000	0.9959	1.0102
CE01 CE01	0.9837	1.0889	1.0856	1.3027
CE02 CE02	1.0175	0.9906	1.0658	0.9692
CPG1 CPG1	0.8267	0.9889	1.0670	1.0068
CTN1 CTN1	0.9737	1.0413	1.0588	0.9305
DS01 DS01	0.9827	1.0182	1.0905	0.9418
EAO1 EAO1	0.9866	0.9525	0.9585	0.9585
EP01 EP01	0.9782	1.1091	1.3696	1.5632
EC01 EC01	0.9999	0.9288	1.0030	1.0044
ETN1 ETN1	0.9431	1.1413	0.9701	0.9138
ETN2 ETN2	1.0619	1.2097	1.3565	0.9161
ETS1 ETS1	1.1792	0.9362	0.9362	0.9362
ET01 ET01	1.0482	1.0342	1.1771	1.1413
ET02 ET02	1.0165	1.0663	1.0794	2.2374
ET11 ET11	0.9674	1.1368	1.1234	5.1469
ET13 ET13	0.9650	1.0042	1.0419	0.9161
EW01 EW01	1.0298	1.1097	1.1254	1.3871
FTG1 FTG1	1.0849	1.1223	1.3247	1.5978
FTN1 FTN1	1.0482	1.0924	1.1257	1.2554
FT01 FT01	1.0187	1.0701	1.0806	0.9305
EPG1 EPG1	1.0475	1.0942	1.3231	1.4348
GPM1 GPM1	1.0674	1.1116	1.2048	2.2267
GPT1 GPT1	1.0322	1.3281	1.5494	2.0087
GSE1 GSE1	1.1022	1.2174	1.1413	5.0217
GSM1 GSM1	1.0046	1.0235	1.0311	1.0256
HT01 HT01	0.9952	0.9924	1.0036	1.0315
HT02 HT02	1.0015	1.0012	1.0354	1.0664
IC01 IC01	0.9495	1.0110	1.1303	1.3516
SP01 SP01	0.9814	1.0228	1.0344	1.0367
Sb01 Sb01	0.9572	1.0010	1.0105	1.0348
TP01 TP01	0.9449	1.0419	1.0082	1.0922
L701 L701	0.9965	0.9871	1.0230	1.0491
I30C I30C	1.0052	0.9950	0.9950	0.9950
I30E I30E	1.0940	0.8889	1.0909	0.8889
3157 3157	0.9666	1.0475	1.2667	5.1811
3522 3522	0.9849	0.9849	0.9849	1.4725
5200 5200	0.9736	1.0504	1.1129	1.2707
6001 6001	0.9860	1.0351	1.0387	1.0960
6005 6005	0.9916	1.0077	1.0307	1.0605

TABLE A-6-1 (Cont'd)

<u>CDP</u>	<u>Quality Weights by Quality Type</u>			
	<u>1-3U HSG</u>	<u>3L-5 HSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>
6006 6046	0.9423	1.0438	1.0444	0.9698
601C 601C	0.9529	0.9767	0.9529	0.9529
602C 6010	0.9529	0.9529	0.9962	0.9529
6015 6016	1.0005	1.0004	1.0037	1.0012
6024 602A	0.9914	1.0851	0.9848	1.2138
6028 6028	1.0086	1.0225	1.0125	0.9750
602C 602C	0.9726	0.9746	0.9746	0.9746
602E 602C	0.9862	0.9751	0.9751	0.9751
6026 6028	0.9565	1.0294	1.2007	1.5223
6027 6027	0.9518	1.1088	1.0421	1.0236
603A 603A	1.0068	0.9900	0.9900	0.3754
6038 6038	0.9500	0.9900	0.9900	0.9900
603F 603F	0.9899	0.9899	0.9899	0.9899
6034 6034	1.0010	0.9622	0.9933	1.0124
6036 6038	1.0058	1.0387	1.0781	1.1153
604A 604A	0.9986	0.9901	0.9901	0.9901
6048 6048	0.9996	0.9900	0.9900	0.9900
604C 604C	0.9899	0.9899	0.9899	0.9899
6040 6040	0.9500	0.9900	0.9900	0.9900
6041 6041	0.9200	0.9848	1.0383	1.1466
6046 6046	0.9848	1.0155	1.0832	1.0463
6047 6047	0.9691	1.0175	0.9691	1.2918
605A 605A	1.0210	1.0099	0.9801	0.9801
605B 605B	0.9949	0.9798	0.9798	0.9798
605C 605C	0.9546	0.9799	0.9799	0.9799
6053 6053	0.9971	0.9859	1.2888	0.9914
605J 6057	0.9406	1.0005	1.0010	1.1351
6059 6055	0.9832	0.9761	1.0218	0.9946
6061 6061	0.9750	0.9868	1.1655	1.0978
6065 6065	0.9970	0.9311	0.9311	0.9311
6064 6068	0.9521	1.0392	1.2257	1.2235
6070 6070	0.9954	1.0381	1.0279	1.0222
6073 6073	0.9983	1.0146	1.0608	0.9851
6076 6076	1.0284	0.8578	1.7112	4.6984
6077 6077	1.0224	0.9133	1.5314	1.7455
6074 6074	0.9575	0.9014	0.9014	0.9014
6079 6079	1.0098	0.9848	1.0603	0.9848

TABLE A-6-1 (Cont'd)

<u>CDP</u>	<u>Quality Weights by Quality Type</u>			
	<u>1-3U HSG</u>	<u>3L-5 HSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>
6081 6081	0.9934	1.0005	1.0294	0.9848
6082 6082	1.0063	1.0148	0.9950	1.0570
6083 6083	0.9939	0.9894	1.0118	1.0823
6093 6093	0.9530	0.9809	0.9926	1.0481
6097 6057	0.9916	0.9865	1.0084	0.9797
6102 6102	0.9461	1.0144	1.0116	1.0746
6106 6106	0.9540	0.9879	1.0143	1.0344
6108 6108	0.9970	0.9899	0.9899	0.9899
6115 6115	0.9740	0.9824	1.0352	1.1431
6119 6119	0.9974	0.9935	1.0042	1.0365
6120 6120	0.9550	0.9950	1.0063	1.0175
6125 6125	0.9958	0.9908	1.0111	1.0179
6131 6131	1.0069	1.0250	1.0160	0.9540
6144 6144	0.9720	0.9814	1.0587	1.1625
6146 6146	0.9971	1.1215	1.0700	0.8709
6149 6149	0.9807	0.9885	1.0959	1.0352
6161 6161	1.0106	0.9736	0.9756	0.9756
6167 6167	0.9456	1.0062	1.0397	1.0181
6182 6182	1.0029	0.9799	1.0307	1.0468
6183 6183	0.9877	0.9792	1.0022	1.0275
6210 6210	0.9990	0.9925	1.0074	1.0244
6212 6212	0.9907	1.0060	1.0314	1.0338
6213 6213	0.9949	0.9984	1.0136	1.0221
6214 6214	0.9936	1.0052	1.0293	1.0104
6215 6215	0.9929	1.0037	1.0030	0.9849
6216 6216	0.9845	1.0053	0.9849	1.0827
6217 6217	0.9988	0.9953	1.0145	1.0256
6218 6218	0.9917	0.9927	1.0050	0.9914
6220 6220	0.9935	0.9849	1.0122	1.0664
6221 6221	0.9867	1.0061	1.0050	0.9849
6222 6222	0.9879	0.9849	1.0204	0.9849
6224 6224	1.0169	1.0216	1.0280	0.9849
6226 6226	0.9876	0.9933	1.0388	1.0554
6230 6230	0.9334	0.9709	1.0907	1.2086
6231 6231	0.9730	1.0651	1.0702	1.1963
6232 6232	0.9359	0.9516	1.1050	1.0452
6233 6233	0.9452	0.9426	0.9613	1.3051
6235 6235	1.0303	1.0926	1.2230	1.3335
6236 6236	1.3051	1.2507	1.0876	1.8851

TABLE A-6-1 (Cont'd)

<u>CDP</u>	<u>Quality Weights by Quality Type</u>			
	<u>1-3U HSG</u>	<u>3L-5 HSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>
6237 6237	1.0458	1.2795	1.5226	1.2627
6239 6239	0.9819	1.0964	1.2265	0.9870
6240 6240	1.0116	1.2045	1.1180	1.2955
6241 6241	1.0113	1.1155	1.0992	0.8636
6242 6242	0.8491	1.0256	1.0933	0.8636
6245 6245	0.9792	1.0529	0.9953	0.9593
6248 6248	1.0748	1.1366	1.3542	1.3784
6249 6249	1.0414	1.1486	1.1252	1.1486
6254 6254	1.1003	1.2635	1.4167	1.3784
6255 6255	0.9601	0.9541	0.9189	0.9189
6256 6256	0.9286	0.9189	0.9189	0.9189
6257 6257	0.9620	1.3784	1.1486	0.9129
6258 6258	0.9782	1.0737	1.3366	1.5425
6259 6259	1.0210	1.1027	1.2635	1.3784
6260 6260	0.9795	1.0108	1.0360	1.0670
6261 6261	0.9898	1.0031	1.0196	1.0466
6262 6262	0.9891	1.0246	1.0780	1.1054
6265 6265	0.9444	0.9512	1.0453	0.9011
6270 6270	0.9302	1.1013	1.0813	1.9560
6271 6271	0.9286	0.9011	1.0513	0.9011
6272 6272	0.9274	1.3516	0.9011	0.9011
6273 6273	0.9784	1.2565	1.4568	1.7121
6274 6274	0.9495	1.0110	1.1303	1.3516
6275 6275	1.0290	1.1264	1.0942	1.9560
6276 6276	0.9240	0.9687	0.9747	0.9011
6277 6277	0.9269	0.9011	1.0294	0.9011
6278 6278	0.9863	1.0034	1.1140	1.1890
6280 6280	1.0000	1.0000	1.0167	1.0000
6281 6281	1.0000	1.0000	1.0000	1.0000
6282 6282	1.0000	1.0000	1.0116	1.0000
6284 6284	1.0035	1.0000	1.0000	1.0000
6286 6286	0.9797	0.9957	0.9797	1.0406
6287 6287	1.0142	1.0000	1.0000	1.0000
6288 6288	0.9848	0.9848	1.0462	0.9848
6289 6289	1.0221	1.0142	1.1767	0.9420
6290 6290	1.0048	0.9745	1.0438	0.9745
6291 6291	1.0035	0.9949	1.0339	0.9797

TABLE A-6-1 (Cont'd)

CDP	Quality Weights by Quality Type			
	1-3U HSG	3L-5 HSG	1-3U NHSG	3L-5 NHSG
6292 6292	1.0064	0.9900	0.9900	1.0347
6297 6297	1.0019	1.0013	1.0024	1.0008
6301 6301	1.0426	1.1075	1.2358	1.7142
6302 6302	1.0146	1.0873	1.2892	1.3949
6303 6303	0.9770	1.0644	1.0905	1.0442
6304 6304	0.9637	1.2850	0.9637	0.9637
6305 6305	1.0075	1.4456	1.2047	0.9637
6306 6306	1.0217	1.0708	1.0351	1.2047
6307 6307	0.9851	1.0708	0.9637	1.2047
6308 6308	0.9940	0.9959	1.0842	0.9637
6309 6309	0.9666	1.0119	1.0173	0.9637
6310 6310	1.0002	0.9637	1.0173	0.9637
6311 6311	0.9735	0.9537	1.0326	0.9637
6312 6312	0.9959	1.0326	1.2047	1.4456
6313 6313	0.9637	1.0326	1.2047	1.0842
6314 6314	1.0513	1.0842	1.3653	1.2047
6315 6315	0.9786	0.9882	1.1565	0.9637
6316 6316	0.9733	1.0494	1.0271	1.1244
6319 6319	0.9694	0.9694	0.9694	0.9694
6320 6320	0.9879	1.0060	0.9799	0.9799
6337 6337	0.9927	1.2170	0.9523	5.1489
6339 6339	1.0030	1.0102	1.0535	1.1043
6341 6341	0.9477	1.1156	1.0461	1.8273
6342 6342	0.9400	0.9598	1.0247	0.9079
6350 6350	0.9538	0.9011	1.0886	1.1264
6352 6352	1.0170	1.2516	1.0012	0.9011
6355 6355	0.9550	0.9560	1.0513	0.9560
6358 6358	1.0694	0.9912	1.1264	0.9560
6359 6359	1.1071	1.0813	1.2733	0.9560
6360 6360	0.9872	1.1264	0.9830	0.9011
6361 6361	0.9912	1.3016	1.2658	1.9524
6362 6362	1.1264	1.2165	1.3967	1.6520
6363 6363	1.0508	1.0649	1.1264	2.2527
6366 6366	0.9851	1.0721	1.1815	0.9189
6368 6368	1.0488	1.1257	1.2422	2.1441
6369 6369	1.0679	1.3430	2.0293	2.0347
6370 6370	1.0161	1.0750	1.2841	1.3477

TABLE A-6-1 (Cont'd)

<u>CDP</u>	<u>Quality Weights by Quality Type</u>			
	<u>1-3U HSG</u>	<u>3L-5 HSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>
6373 6371	0.9435	0.9360	0.9840	1.1327
6372 6372	1.1535	1.0721	1.1946	0.9189
6376 6376	0.9928	1.0252	0.9899	0.5899
6377 6377	1.0006	1.0038	0.9922	0.9642
6378 6378	0.9858	0.9641	1.0062	1.0323
6380 6380	1.0034	1.0009	1.0055	1.0000
6381 6381	1.0012	1.0016	1.0000	1.0000
6400 6400	0.9984	1.0032	1.0143	1.1868
6403 6403	0.9845	0.9637	1.0050	5.3005
6404 6404	0.9913	1.0842	1.1565	0.9637
6405 6405	0.9782	0.9637	0.9637	0.9637
6406 6406	0.9736	0.9637	1.0601	0.9637
6407 6407	0.9727	1.0440	1.0468	0.9637
6409 6409	1.0952	1.1714	2.2527	4.5560
6410 6410	1.0025	1.1264	1.0671	0.9011
6412 6412	1.0596	0.9762	1.1103	0.9011
6413 6413	1.0277	1.0338	0.9846	0.9129
6414 6414	0.9992	0.9846	1.1486	0.9129
6415 6415	0.5607	1.2378	0.9189	0.3129
6417 6417	1.0510	1.0529	1.1518	0.9129
6420 6420	1.0256	1.0570	1.0683	1.7570
6421 6421	1.0769	1.1363	0.9161	0.9161
6423 6423	0.5161	0.9161	0.9161	0.5161
6424 6424	1.0152	1.0629	1.1119	0.9161
6428 6428	1.0044	1.0784	1.0975	4.8800
6429 6429	1.0457	1.3565	1.3565	0.9161
6447 6447	0.9637	0.9637	0.9637	0.9637
6450 6450	1.3724	0.9189	0.9189	0.9129
6452 6452	1.0022	0.9642	1.0592	0.9642
6477 6477	0.9991	0.9861	0.9848	1.0199
6486 6486	1.0001	1.0076	1.0703	1.0938
6487 6487	1.0023	1.0010	1.0034	1.0029
6489 6489	0.9950	0.9882	1.0163	1.0213
6492 6492	0.9963	1.0192	1.0375	1.0793
6493 6493	0.9559	1.0196	1.0101	1.0803
6501 6501	0.9722	1.0070	0.9946	1.0734
6506 6506	0.9622	1.0026	1.0556	1.0570
6511 6511	1.0000	1.0000	1.0000	1.0000
6512 6512	0.5539	1.0004	0.9547	1.0017

TABLE A-6-1 (Cont'd)

<u>CDP</u>	<u>Quality Weights by Quality Type</u>			
	<u>1-3U HSG</u>	<u>3L-5 HSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>
6513 6513	0.9863	0.9987	1.0047	1.0181
6515 6515	0.9977	0.9908	1.0189	1.0822
6516 6516	0.9806	0.9997	1.0342	1.0053
6517 6517	0.9847	0.9904	1.0276	1.0116
6518 6518	0.9848	0.9897	1.0153	1.0456
6519 6519	0.9781	0.9790	1.0044	1.0459
6521 6521	0.9996	0.9900	1.0009	0.9900
6522 6522	0.9866	0.9827	1.0306	1.0181
6527 6527	0.9950	0.9977	1.0155	1.0053
6528 6528	0.9845	0.9954	1.0739	0.9976
6530 6530	0.9971	0.9987	1.0147	0.9748
6537 6537	0.9808	1.0072	1.0898	1.0454
6542 6542	0.9637	1.0456	0.9637	0.9637
6543 6543	0.9637	0.9637	0.9637	0.9637
6544 6544	0.9541	0.9011	1.0213	1.0560
6545 6545	1.0004	1.0502	1.0108	0.9189
6546 6546	0.9662	1.0572	1.0660	2.6906
6549 6549	0.9011	1.3516	4.9560	0.9011
6551 6551	0.9129	2.2973	0.9189	0.9189
6562 6562	0.9899	0.9899	0.9899	0.9899
6569 6569	0.9950	0.9950	0.9950	0.9950
6570 6570	0.9899	0.9899	0.9899	0.9899
6571 6571	0.9950	0.9950	0.9950	0.9950
6572 6572	0.9899	0.9899	0.9899	0.9899
6573 6573	0.9899	0.9899	1.1549	1.1136
6574 6574	0.9899	0.9899	0.9899	0.9899
6582 6582	0.9950	0.9950	0.9950	0.9950
6562 6562	0.9940	0.9899	1.0124	0.9899
6563 6563	1.0047	1.0000	1.0091	1.0000
6564 6564	1.0000	1.0000	1.0139	1.2500
6565 6565	0.9525	0.9071	1.1339	0.9071

TABLE A-6-2
COSTS FOR QUALITY TYPES

Rating	Within Rating	Course Cost for				Course Length
		1-3U HSG	3L-5 NHSG	1-3U NHSG	3L-5 NHSG	
A8E	A	3729	3779	3808	3857	51
A8F	A	2677	2696	2683	2700	33
A8H	A	2611	2619	2671	2641	30
AC	A	8891	9047	10056	10739	100
AO	A	2148	2241	2217	2453	56
AO	B	2735	2731	2741	2752	33
AO	C	3381	3377	3387	3398	33
AO	D	3693	3688	3698	3709	33
AO	E	4783	4779	4789	4800	33
AO	F	3209	3204	3214	3225	33
AD	G	3859	3855	4602	4431	33
AD	H	4058	4054	4063	4074	33
AD	I	4561	4557	4567	4578	33
AD	J	2735	2731	2741	2752	33
AE	A	5998	6108	6732	7657	123
AK	A	2561	2567	2691	2654	64
AME	A	3584	3676	3842	3719	77
AMH	A	3005	3028	3175	3122	63
AMS	A	3474	3503	3626	3737	77
AO	A	3570	3740	4004	4024	78
AQ	A	9657	12274	11289	14173	170
ASE	A	5958	6581	7440	11581	110
ASH	A	4197	4104	4329	4488	83
ASM	A	3963	3921	4041	4166	30
AH	A	4986	5663	5574	5317	86
AX	A	9589	10258	11272	13220	171
AZ	A	2104	2131	2327	2136	57
BT	A	7938	8236	9222	9755	75
BT	B	6325	6445	6926	7182	54
BU	A	2995	3043	3931	3074	60
CE	A	5513	5523	6090	5757	94
CM	A	5331	5343	5765	5440	84
CTA	A	3810	4100	4782	6063	43
CTM	A	23702	21611	21272	20910	275
CTO	A	6781	6705	8765	6743	84
CTR	A	9217	9790	10924	15154	126
CTT	A	10030	10690	11930	12577	121
CTT	B	10927	11441	12868	13615	129
CTT	C	15072	17559	25281	139883	171
CTT	E	13966	13670	17509	15844	150
DK	A	3246	3289	3950	3700	68
DP	A	3799	3875	4008	3925	56
DS	A	11931	11507	11546	10251	209

TABLE A-6-2 (Cont'd)

<u>Rating</u>	<u>Within Rating</u>	<u>Course Cost for</u>				<u>Course Length</u>
		<u>1-3U HSG</u>	<u>3L-5 NHSG</u>	<u>1-3U NHSG</u>	<u>3L-5 NHSG</u>	
EA	A	4125	4007	4007	4007	73
EM	A	5332	6025	6687	7178	100
EN	A	2746	2790	2869	2964	47
EO	A	4514	4463	4528	4534	56
ETAE	A	15256	16118	16974	39018	255
ETSS	A	19419	20788	22873	28130	241
EW	A	14622	15615	14542	17141	187
FTG	A	7205	7364	7896	8394	138
FTGS	A	12782	18540	14575	114928	178
FTM	A	7095	8518	7914	8171	139
GMG	A	5776	5902	6437	8227	118
GMM	A	5632	5779	6387	9755	118
GMTA	A	5766	6137	6964	8200	120
GSE	A	23192	21707	30551	32430	118
GSM	A	14481	14388	15177	20692	131
IC	A	5929	6265	7095	6991	113
IM	A	7552	7788	8307	8024	112
ML	A	8106	7241	12141	13870	77
MM	A	4745	5117	5570	6101	65
MM	B	4322	4652	4848	5595	55
MN	A	9487	10155	10707	11824	112
MR	N	4061	4432	5228	5212	79
MS	A	2327	2315	2363	2379	42
MU	A	9041	8443	8443	8443	168
OM	A	6859	7202	6859	9143	105
OT	A	10780	12690	11899	20786	77
PM	A	16160	13479	26890	73831	126
PN	A	2457	2538	2530	2711	61
PR	A	5229	5233	5376	5610	75
QM	A	1892	1986	1993	2103	40
RM	A	5244	5255	5770	5958	78
RH	B	4831	4872	5322	5575	70
SH	A	2640	2611	2602	2695	42
SK	A	2270	2251	2374	2301	54
SM	A	2172	2263	2289	2294	42
SN	A	3417	3430	3463	3546	59
TO	A	7220	7940	8693	7275	139
TM	A	4309	4578	4504	4605	66
TM	S	7755	7655	8611	12707	119
TH	C	3422	3655	3674	4039	61
UT	A	4629	4585	4752	4873	77
YN	A	2596	2786	2788	3213	61

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